AMERICAN CINEMATOGRAPHER

FOR AMATEUR AND PROFESSIONAL PHOTOGRAPHERS

December
1939
25c
Foreign 35c
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Cinematographers

ine Grain Positives
HILLIARD

esting New Weston
SPARKUHL

eves Puts 16mm. and
mm. in Bed Together

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Boom
STULL

ntinuity Prime Factor
CADARETTE

Action Stills with
Synchro-Flash
BROWN

e of American Film—
Review
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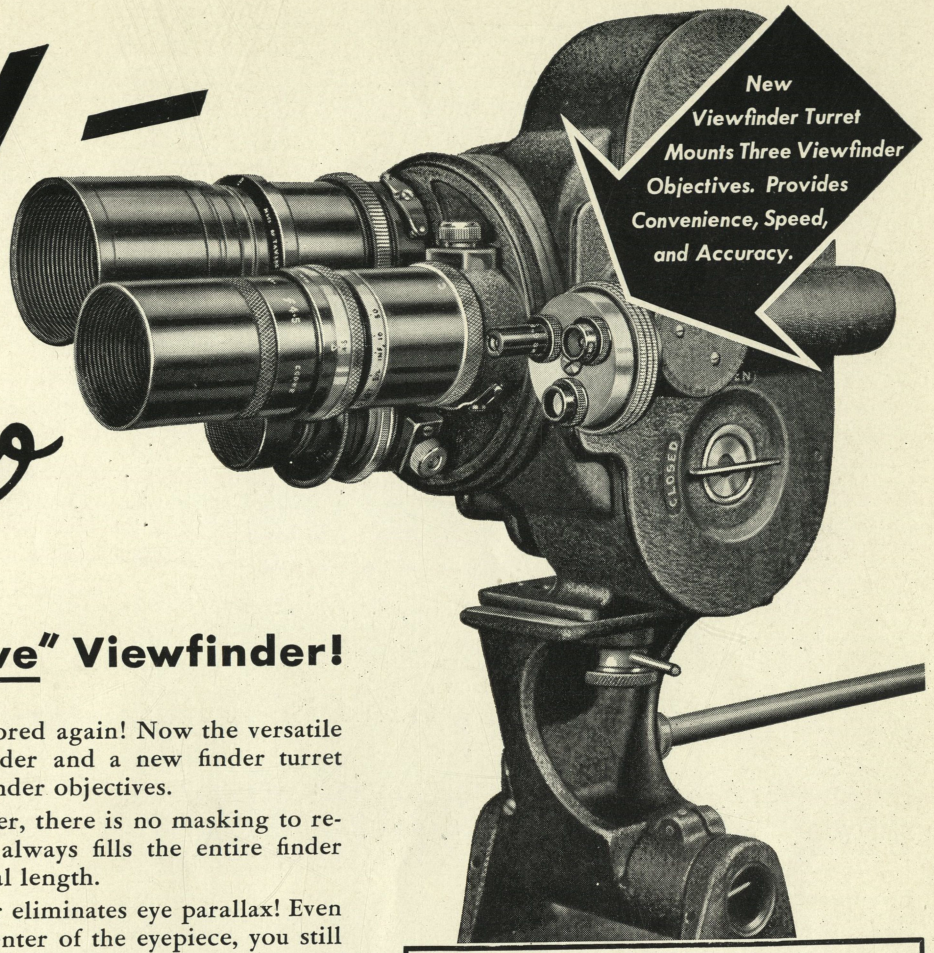

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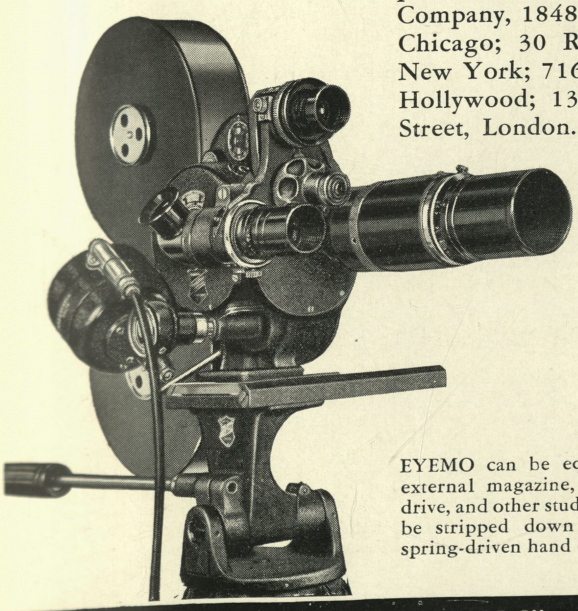

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Front Cover

TO catch every subtle nuance in the magic dancing of Zorina in "On Your Toes" the camera crew used every device at its disposal. For this scene in the "Zenobia" ballet the boom is called into play. This beautifully wrought instrument, constructed of featherweight steel (at a cost of $11,000) and operated by four men, enables the operators of the camera to shoot the famous ballerina from every angle, from above and from below her. The musical portions of the picture were filmed under the direction of Georges Balanchine (at right of dancing group with hand on hip); James Wong Howe, A.S.C., cinematographer for "On Your Toes," stands with Georges (in gray suit, white shoes). The operative cameraman is George Nogle.

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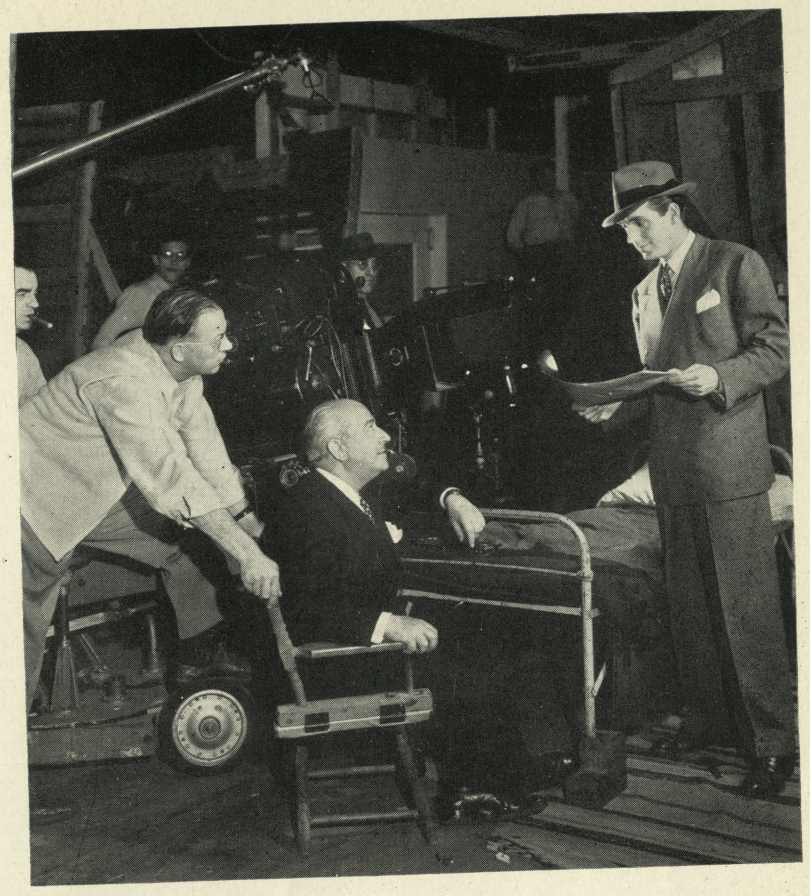
Entered as second class matter November 18, 1937, at the postoffice at Los Angeles, California, under the Act of March 3, 1879.

Testing New Weston Meter

By Theodor Sparkuhl A.S.C.



Theodor Sparkuhl, A.S.C., veteran cinematographer, is here shown (left) watching the rehearsal of Robert Paige in a scene for "Opened by Mistake," which George Archainbaud (center) is directing at Paramount.

IT has frequently been stated that the use of a modern photoelectric exposure meter is a valuable aid in maintaining consistent negative values under varying conditions of lighting and film sensitivity. The greater part of this discussion has been based on the use of meters measuring incident light, giving the impression that the reflected-light type of meter is not suited to modern studio conditions.

While I have no desire to revive the old controversy over the respective merits of incident light versus direct light readings, I feel that a statement of my recent experiences using one of the newer types of reflected light meters may prove of constructive value at this time.

Briefly, they may be summarized by the statement that I have found it possible to name arbitrary overall light readings and film-speed settings which will permit one to predict with accuracy the printing value of the negative so exposed.

DuPont Superior—(Old Type).

It must be understood, of course, that my experiments were based on the processing procedure of the Paramount Studio laboratory, and would accordingly require some modification for film processed in other plants where negative development or printing might be scaled differently. The meter used was one of the new Weston Master models which, due to its increased low-range sensitivity, is unusually well adapted to modern conditions.

Photographing normally keyed studio interiors on the old-type DuPont Superior negative, I have found that if the meter's film speed scale is set at a speed value of 20, and the light reading is taken with the B or normal arrow on the meter's calculator, an overall light value midway between the calibrations 6.5 and 13, with the camera's lens at f.2.3, will give a negative printing normally on light 14.

Using the same film for normal exterior scenes, I set the meter's speed scale at a value of 24. Taking my reading with the B (normal) arrow on the calculator, and setting my camera accordingly, I obtain a negative which also prints on light 14.

On exterior scenes, of course, this reading may always be taken as a basic exposure, to be modified as may be necessary by reducing the shutter aperture, applying filters, and so on.

It may also be observed that in some instances the speed values I have used differ somewhat from those in the Weston table. This is to be expected due to differences in laboratory processing, and in some cases in the effect desired. The Weston engineers themselves specify that their ratings are based on averages, and should be modified according to individual practice.

DuPont Superior—Type II.

At this writing I have had the opportunity to use the new and faster DuPont Superior, Type II, only on interior scenes. For such scenes I have found it best to use a film speed setting of 40. With this setting, and taking my reading with the B (normal) arrow, an overall light reading that brings the needle exactly midway between the 6.5 and 13 calibrations gives a negative that prints on light 15.

My average lens setting for interiors made with this film is f.2.8. Accordingly those who prefer to photograph interiors at the maximum aperture of their lenses and with greater reductions in light levels will have to modify their meter technique somewhat, as will also those who favor higher light-levels and smaller stops.

Eastman Super-X.

While with the coming of the newer, faster emulsions, Eastman's Super-X has to a great extent been supplanted by Plus-X in studio work, a brief mention of my findings in connection with this film may be of interest.

On interior scenes I used a speed value setting of 16 for Super-X, with my procedure otherwise the same as when using the old type DuPont Superior. In other words, light to get an overall light-value reading midway between 6.5 and 13, use the B arrow in

taking the reading, with the lens stop f.2.3 and the resulting negative will print at light 14.

Using Super-X for exterior scenes, I have had the best results when using a speed value of 20, thereafter proceeding normally. The resulting negative prints on light 14.

Eastman Plus-X.

Using Eastman Plus-X for ordinary interior scenes I have found a speed setting of 32 to give excellent results. With this the reading is, as usual, taken with the B (normal) arrow on the calculator. A light-value of exactly 6.5 gives a negative that prints on light 13. The diaphragm stop I used was f.2.5.

Process Shots.

I have frequently heard the complaint that no existing meter will give accurate results in making transparency or back projection process shots. I naturally welcomed an opportunity to experiment in this direction, shortly after obtaining the new model meter. While these tests were only made on a limited number of scenes in two productions, I believe I have established a technique for using the meter in making such shots.

An overall reading, from camera position, is taken *with the background plate being projected.* The tests were made using Plux-X negative.

For this type of shot, I have found it necessary to use an artificially high speed rating; I set the meter for a film speed of 100. Then I take my reading with the *A* or half normal exposure arrow on the calculator.

Under these conditions, and with the background projector in operation, I have found that for night-effect scenes an overall light-value of 1.6 will give a negative which, being exposed at f.2.6, will print on light 17.

For transparency day-effects, I use the same technique—that is, a speed setting of 100, and taking the reading with the *A* narrow. Taking my reading in this manner, I have found that an overall light-value of approximately 3 results in an exposure of f.2.8 and a negative (on Eastman Plux-X) which prints on light 17.

Practical Shots at Earl Carroll's.

As I write this, these experiments have just paid practical dividends in solving a somewhat unusual problem. Paramount is planning a picture to be called "A Night at Earl Carroll's," written around Hollywood's most spectacular cafe-theatre.

Due to the intricate construction of the multiple revolving stages which are an integral part of this theatre's revues, the studio executives decided that it would be much more efficient to film some of the spectacular numbers in the actual theatre, during a performance, than to attempt to reproduce them in the studio.

Accordingly one afternoon recently I received a sudden call to make tests that night, during an actual performance at Carroll's. Since none of us were too familiar with the precise routine of the show, we agreed to go that evening merely to study the acts, while I made preliminary tests with my Leica.

The next night we loaded a cine camera with the new Du Pont Type II and set out to film actual motion picture tests. Since we were to be photographing an actual performance, only the usual theatre lighting was possible. This naturally included many colored light-effects.

From my position at the rear of the house I took a reading with my meter. The light-value was 1.6; hardly enough, it seemed, to make possible an exposure.

But I recalled that this was the same light-level I had found in testing the meter for transparency night-effects. Moreover, the lighting appeared visually to be very similar to the levels I knew were used in transparency shots.

Since this impression was confirmed by the meter's reading, I made my shots with confidence, using a full-aperture exposure rather than the f.2.6 used for transparency night-effects.

The results were rather surprising, even to me. The exposure was not only adequate, but even somewhat full, they printed about on light 17. In all, we exposed more than 20,000 feet of film on that evening's two performances, using the new Du Pont Type II on the first show and, as a matter of safety, the faster though coarser-grained Super-XX on the second.

These scenes were intended, as I have said, for tests. But they proved so satisfactory that it has been decided to use many of them, especially those made on the finer-grained emulsion, in the actual production! They will be used as cuts, in montages, and the like. Moreover they have proved the practicability of filming actual production scenes, in sound, in the theatre.

Prefers Reflection Readings

In conclusion, it may be observed that while this technique of using a meter provides an excellent guide to overall illumination values and printing densities, it does not and can not indicate anything concerning the balancing of the lighting.

This, I believe, is the proper function of the meter, for while all cinematographers strive to maintain consistent printing densities, no two of them balance their lighting in exactly the same way, even though they may employ identical overall illumination levels and exposures.

Taking reflected-light readings from the camera position is, I believe, the quickest and most satisfactory method of using a meter. I realize that many extremely capable cinematographers favor incident-light readings, taken on the key light from subject position.

But to me, this admits a possibility of error: the key light may give the correct reading in itself, yet the overall illumination—especially when varying reflective values of set and costumes are considered—may easily be insufficient to give the desired printing density.

With a reflected-light reading, on the other hand, the meter's indication imme-

(Continued on Page 538)

*Two of Cinematographer Sparkuhl's Lecia test exposures made during an actual performance at Earl Carroll's theatre-restaurant. The new DuPont Superior Type II negative was used, exposed 1/50th second at f:*B.C*—the same exposure given by the motion picture camera.*

Use of Fine Grain Positive Emulsions for Variable Density Film Recording

By John K. Hilliard

UNTIL recently the accepted method of recording by the variable density film method has utilized conventional positive emulsions. This film has a grain such that to keep the noise to a tolerable state, electrical noise reduction is applied. This application causes a variation in noise with the degree of modulation which at times has caused a disturbing intermodulation.

The size of grain in film emulsion was one of the first factors to be recognized as a limitation upon how quiet film sound recording could be. In the early days of sound the most practicable choice of a film medium was ordinary positive stock which had the merit of being relatively fine grained in addition to its other qualifications of speed and contrast.

It was well recognized that this selection was only a matter of expediency and that ultimately the whole question of grain structure and its effects upon the sound product would have to be worked out, but at the time other problems were much more pressing.

Grain size and clumping characteristics in picture emulsion had always been under study, and the results obtained in the past few years in background process stocks and in higher speed fine grain negatives and duplicating stocks have been truly remarkable.

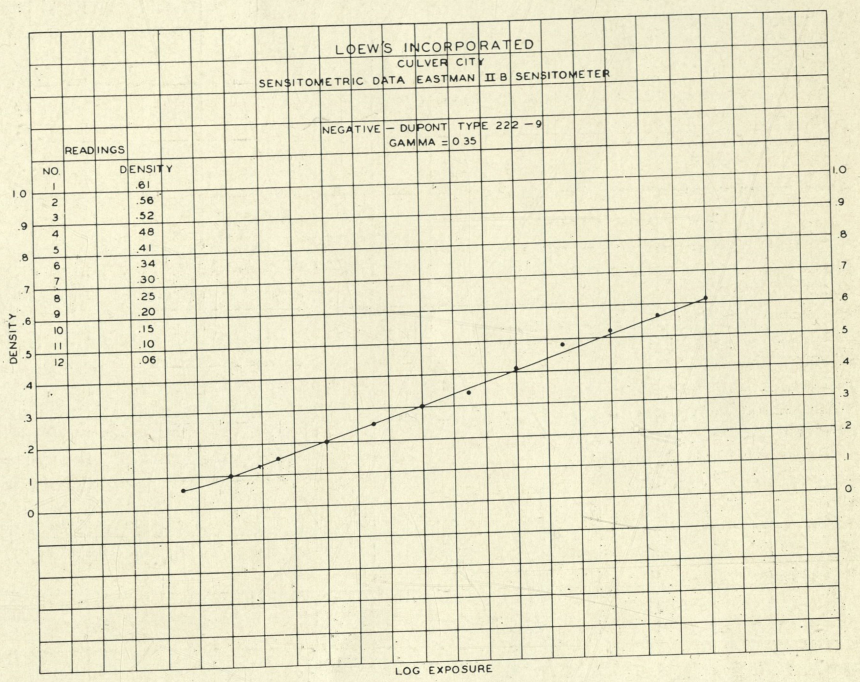


Figure 2

For a long time, however, it appeared that a decrease in grain size in any emulsion was produced only at the expense of speed. It has only been a relatively short time since the higher speed fine grain stock, for picture purposes, have been available due to the progress which has been made in the use of more advanced methods of emulsion making which have enabled the film manufacturers to produce fine grain without a loss in speed.

In view of the probable delay in securing improved fine grain sound film emulsions, the activities of the sound engineers were early directed toward synthetic methods of reducing film noise, with the notable results of the many methods of producing electrically operated noise reduction, of push-pull and its variations, the squeeze track and pre- and post-equalization.

All of these have served an important part in noise reduction in the final product and it is probable that certain elements of them will always continue to be necessary in order to secure the maximum practicable effective reduction. That is, they will be needed to augment the noise reduction which can be obtained in the film itself.

With all of the regular electrically operated noise reduction devices there is inherently a time element in their operation which in general produces deleterious effects. These may be minimized only by careful choice of the elements used and the degree of reduction attempted.

If, therefore, quiet background film emulsion could be found which was adaptable to sound recording, an immediate forward step could be made. Such a step was made possible some

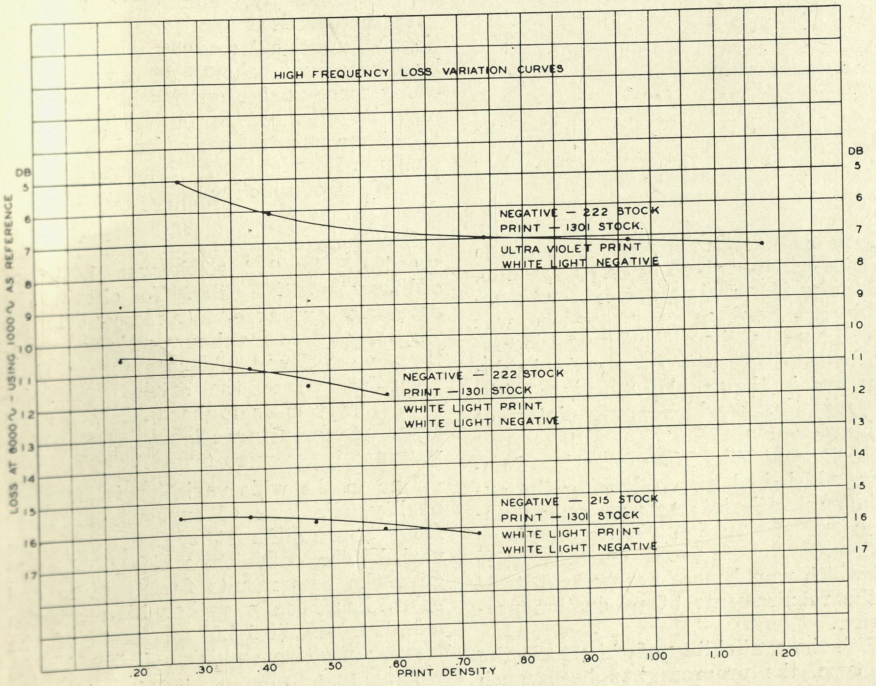


Figure 1

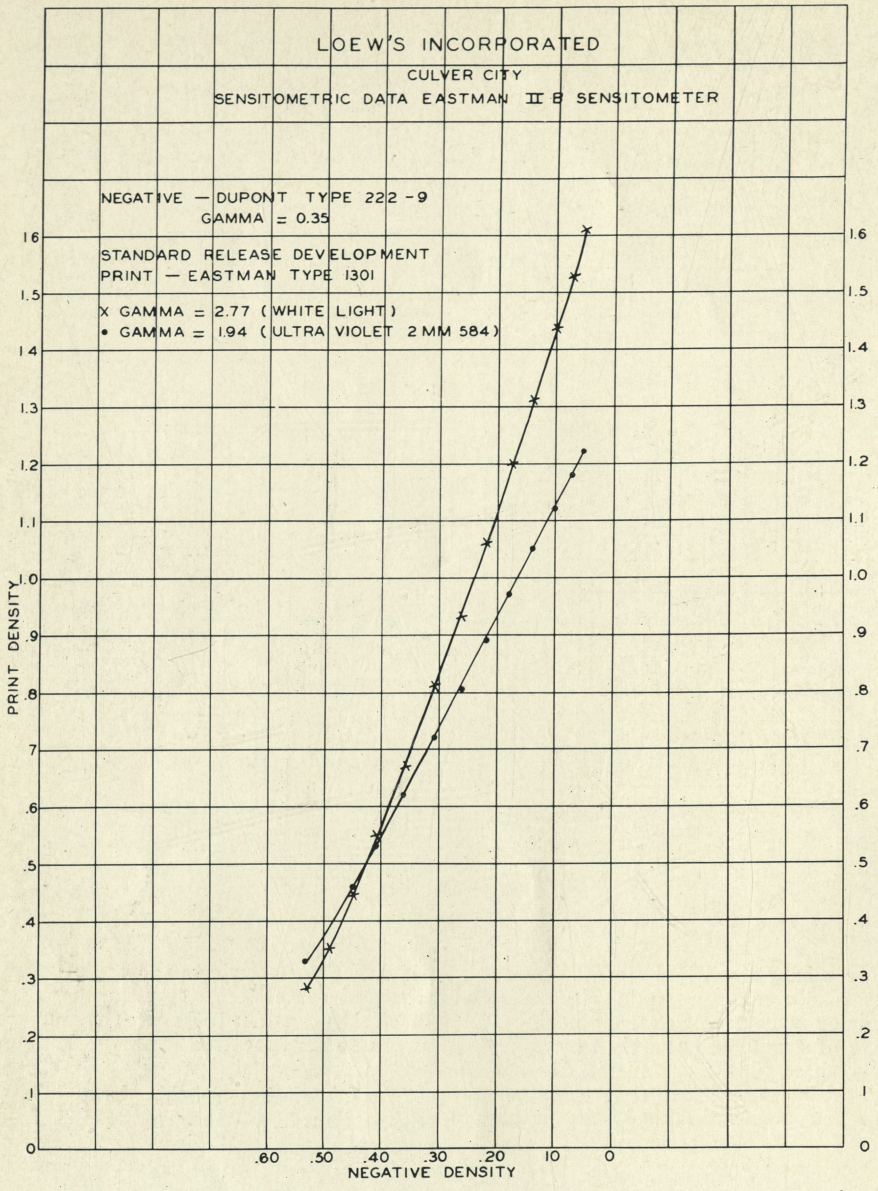


Figure 3

time ago for variable area recording, as the speed requirement was less severe. For variable density recording the progress was slower and practical recording was made possible only about a year ago.

Early in 1938 tests on type 1365 film indicated the stock was too slow for recording. However, it was possible to obtain prints on this stock, and these showed the noticeable reduction in background noise and general improvement in quality as a result of fine grain. The search for a faster fine grain stock then began, realizing that its use in both original and release prints would produce superior results.

Later in 1938 attention was brought to the Dupont 216 type stock which appeared to effect definite possibilities and test work was commenced to determine experimentally if we could achieve in negatives as well as in the prints the quality and noise improvement which had been predicted by the preliminary experiments.

In this we were fortunate in our use of the 200 mil type of push-pull as the nature of the optical system and valve is such that we obtain twice the film exposure that the 100 mil standard system obtains, with equal lamp supply, with no change in intermodulation due to the size of the valve image at the film.

A very definite improvement was noticeable, but another serious problem was raised, namely, the difficulty of processing fine grain negative in standard solutions and in the regular machines without adjustment which would interfere with production.

The Dupont Film Manufacturing Company, which had been following the experiments with interest, suggested another type of emulsion which would have further improved speed characteristics and which would more nearly lend itself to the requirements of production processing.

With the availability of this stock, the 222 type, the progress has been much more rapid as it has permitted the film laboratory more effectively to enter into the problem and to handle the film.

Some months ago after many tests, the decision was reached to go into normal production on all musical recordings and to work toward the adoption of fine grain negative for all production recording. The production use was gradual, starting in January of this year, with the entire studio product now being recorded on fine grain negative of the Dupont 222 type.

Early tests using fine grain original prints from which the rerecording or dubbing is made indicate that a great improvement in quality and noise was obtained.

The next greatest saving appeared to come from the use of fine grained material for the original negative, and following these two uses, the more refined improvement came from the use of the fine grained stock for all four processes, namely original negative, rerecording print, rerecorded (or released) negative and lastly, the release print.

Consequently, we chose to concentrate first on the rerecording prints, and for over a year all prints for this purpose have been made on fine grain stock. Next came the use of the fine grain stock for original sound negative and for several months the universal use of the stock for this purpose has been an accomplished fact at this studio.

During the period of getting the stock into these uses, work was being carried on to determine the practicability of the use of the stock for release negative, and a number of pieces of special material have been so released, with the expectation that all M.G.M. sound release will be on fine grain negative at an early date.

The last step, the use of fine grain stock for release prints is the most difficult, not from the technical standpoint, but economically. Our work together with the excellent results in the production, "Geromino," recently demonstrated by Paramount, shows clearly that an easily recognizable quality improvement may be obtained in both picture and sound through the use of such a release medium. Its adoption is, however, a matter of cost which cannot properly be discussed here.

Sensitometric tests indicated that the speed of the 222 stock was 1/6th of ordinary positive film. To obtain the necessary exposure, incandescent lamps when forced to maximum safe temperatures were found adequate for original recording where the efficiency of the optical system is higher. Also, various types of mercury arc lamps of the high pressure types were tested.

Due to the wide variation in spectral quality, the type of exposure obtained from these different sources was also varied. The emulsion, which ultimately gave the best results for negative and print, has been a rather high gamma infinity stock (3.5-4.0) in terms of the regular positive emulsion (2.5-3.0).

This high gamma infinity in turn caused a change to be necessary in the

method of developing the film as well as in its printing.

When light of a totally different spectral distribution such as is obtained by the mercury vapor lamp and ultra violet filters, the developed gamma differs from the control gamma obtained with Tungsten light. *Since the departure cannot be measured directly until the sensitometer and densitometer are equipped with the same quality of light as the recording and printing light, we must resort to dynamic tests such as intermodulation and harmonic analysis.

The difference between the product of negative and positive control gamma and true unity gamma has been due to several factors such as print and projection, factors and the difference in colmination between measuring and reproducing equipment. Measurements which include these factors show unity gammas as indicated by electrical densitometer readings currently made.

Sensitometric tests indicated that the actual gamma was approximately 30 per cent to 40 per cent higher than the indicated gamma by conventional methods, this difference in gamma being a result of the fine grain structure which causes a marked difference in scattering of the light when transmitted through the film.

Further tests indicated that ultra violet exposures would reduce the effective gamma of the negative by approximately 10 per cent. When ultra violet exposure is applied to the print as much as 30 per cent to 40 per cent reduction in gamma could be obtained.

Where changes in printer light are made in the release print to secure changes in volume from scene to scene more latitude can be had where ultra violet printing is used and considerably less distortion will result in obtaining the desired volume range.

Ordinarily where original recorded material is rerecorded, the high frequency loss has been quite considerable, and where five grain film has replaced all four steps in original and release recording an improvement in the 8000 cycle signal to noise ratio has been obtained.

The various frequency response curves for different stocks are indicated in Fig. I. The top curve would also represent a 222 print as no difference in frequency response is noted between this type film and 1301 normal positive in an ultra violet print.

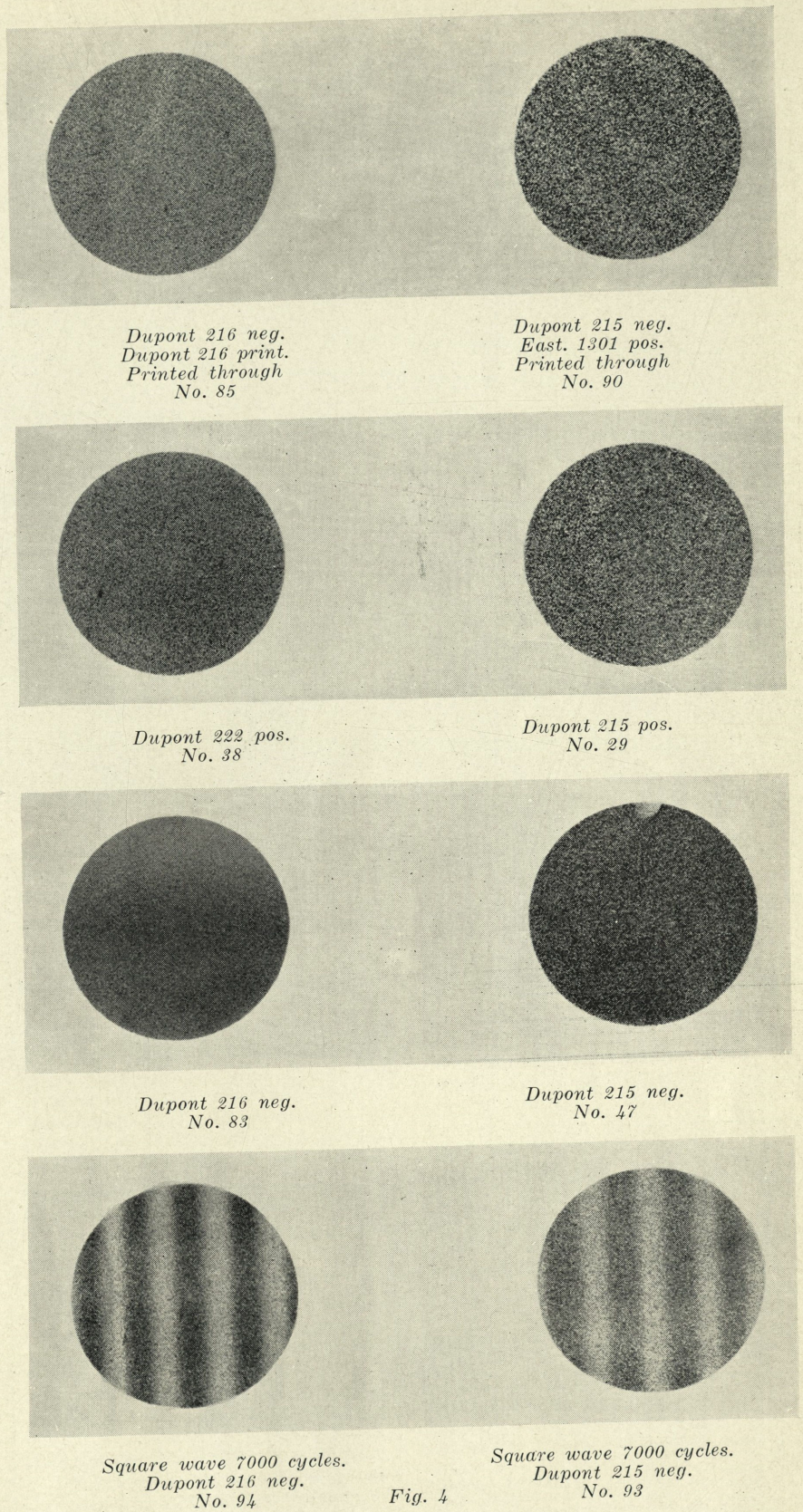
There is also an added increment in overall quality, due to the large reduction in background breathing when electric noise reduction is used. As a result, the intermodulation between film noise and the signal is much lower.

The type of mercury arc lamp which has been used to secure greater illumination than can be obtained by the Tungsten lamp, has been at 85 watt 250 volt lamp. When greater illumination is required than that which could be obtained from this lamp at 85 watts, a forced air stream is used around the quartz bulb so that it is possible to use the lamp at 200 to 300 watts with a considerable increase in illumination.

The illumination of the lamp is held constant by a motor fan the speed of which is controlled by the voltage drop of the arc.

Already several short subjects have been released where fine grain film has been used in the original process and no electrical noise reduction was applied to the original negative which was of the wide push-pull pre-equalized type and its overall signal to noise ratio was

(Continued on Page 564)



Dupont 216 neg.
Dupont 216 print.
Printed through
No. 85

Dupont 215 neg.
East. 1301 pos.
Printed through
No. 90

Dupont 222 pos.
No. 38

Dupont 215 pos.
No. 29

Dupont 216 neg.
No. 83

Dupont 215 neg.
No. 47

Square wave 7000 cycles.
Dupont 216 neg.
No. 94

Square wave 7000 cycles.
Dupont 215 neg.
No. 93

Fig. 4

When T. E. Shea, engineering vice president of Electrical Research Products, Inc., arrived in Hollywood recently he was guest at a luncheon attended by sound department heads of several major studios. Among those present, left to right: Standing, Tom Moulton, United Artists; Loren L. Ryder, Paramount; E. H. Hansen, Twentieth Century-Fox; John P. Livadary, Columbia; Jack Whitney, General Service Studios. Seated, Vice President T. E. Shea, Clifford W. Smith, Hollywood vice president of Erpi, and Bernard Brown, Universal.

Photo by Pat Clark, Hollywood.

Sparkuhl Tests New Weston

(Continued from Page 534)

diately tells whether the average overall illumination plus the reflective factors involved are or are not capable of giving the desired overall exposure, and hence the desired printing value.

Suit Own Technique

With this assured, the cinematographer may balance his lighting to suit his own technique and—more important yet—the photodramatic effect desired, entirely confident that his basic exposure value will remain such as to give the desired overall density.

To my mind, this method allows infinitely more complete control of the artistic variables of lighting, while maintaining the purely technical matter of overall exposure desirably free from variation.

Once the individual cinematographer has tabulated a system of this type, coordinated alike with his personal lighting technique and the standards of the laboratory processing his film, this use of a meter can speed and simplify his work.

If, as is so often the case, he prefers to do most of his work at a fairly constant lens aperture, all that is necessary is to build up the overall light-level until the desired reading on the meter's primary scale is obtained.

Then, without reference to the calculator, he can shoot his scene, confident that his overall exposure—and hence the printing density—will be correct and consistent.

Balancing the light will remain, as it always should be, a matter of his own individual taste. Admittedly there could in some cases be sufficiently great errors in light-balancing to produce an erroneous overall meter reading: but among cinematographers of standing the possibility of such misjudgment is vanishingly small.

In general, the use of overall reflected-light meter readings of this type will, I believe, tend to minimize and simplify another routine cinematographic problem, while at the same time leaving the cinematographer the fullest freedom in expressing his individuality through lighting balance.

January Issue

THE American Cinematographer will start off 1940 with a bang. Among leaders already in type and itching to go are:

A fine story for professionals and amateurs on Photoelectric Exposure Metering by Captain Don Norwood, U.S.A., retired.

Making Modern Matte-Shots, Article II, by Byron Haskins, A.S.C.

A short technical article on Obtaining Increased Illumination for Fine Grain Film Recording, By O. L. Dupy and John K. Hilliard.

A helpful article by Edward Kearns, assistant cameraman, on how greatly to add to the speed and convenience of routine camerawork.

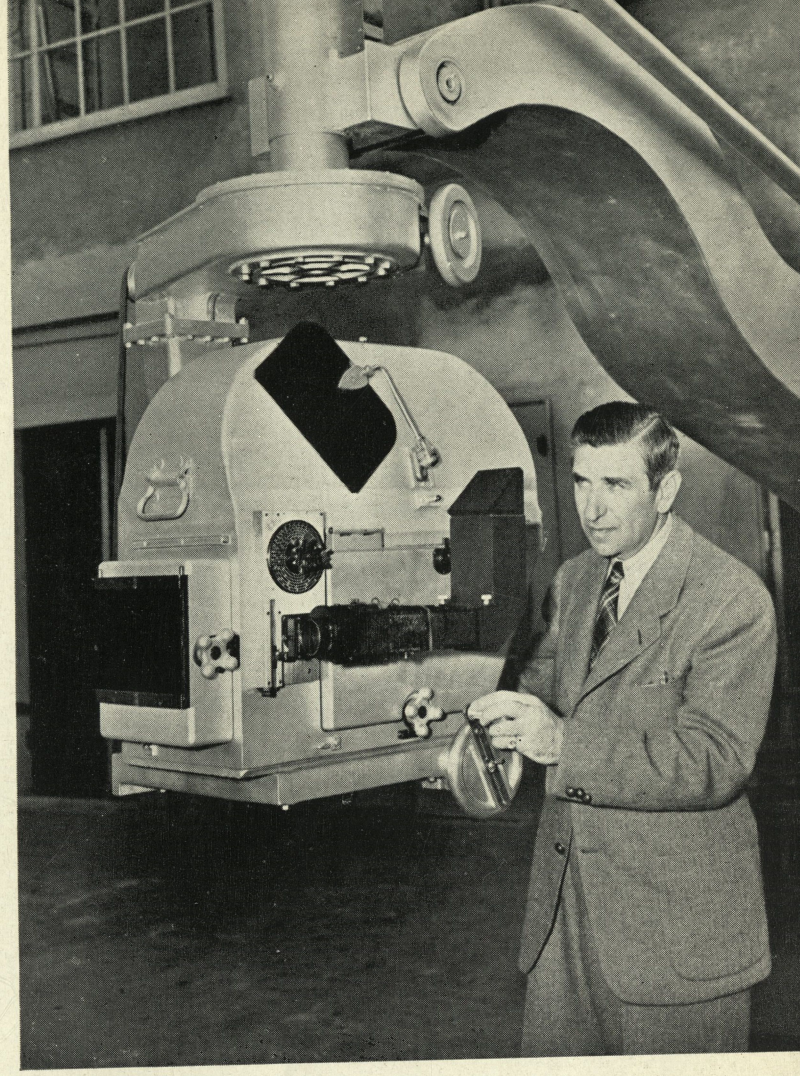
Chicago Cinema Club

The oldest incorporated amateur cinema club in the United States has a new board of officers, as follows: E. J. Hammae, president; J. R. Mollan, vice president; Lilly C. Thye, secretary; Sherman Arpp, treasurer; board of directors, H. W. Clark, Joseph Stout, Edward Bezazian and A. G. Diderickson.

United States exports of positive motion picture film decreased more than 27 million feet during the first nine months of the year as compared with the corresponding period of 1938, according to a study prepared by Nathan D. Golden.

M-G-M BUILDS UNIQUE CAMERA BOOM

By WILLIAM STULL, A.S.C.



Camera Chief Arnold operates the quick-action pan on his new camera carriage. Note underslung camera mounting and inverted periscope on finder. Fourteen turns of the wheel under Arnold's hand pans camera through full circle; tilt also permits full-circle rotation.

WITH the popularization of the modern moving camera technique there has been an increasing trend toward the development of camera supporting units capable of serving as virtually a universal camera carriage for use not only in stationary but in most types of moving-camera shots. Obviously, questions of physical bulk and weight have been consistently limiting factors, as have those of operational facility.

Accordingly we have seen the evolution of two principal types. On the one hand there are a variety of small, mobile camera carriages such as the "rotambulator" and the "velocilator." On the opposite extreme are the much larger crane or boom type units capable of lifting a camera and its crew twenty or thirty feet into the air.

In some instances, intermediate sized cranes have been built; but in general various conditions of design and operational problems have limited their usefulness.

Nonetheless, it has been generally admitted that if some single device capable of fulfilling all the camera-carriage requirements of modern technique, with the exception of those few demanding the use of largest cranes, production would have gained a valuable tool.

Designed by Arnold

A new type of intermediate sized boom, apparently incorporating most of these desirable features, has been placed in service at the Metro-Goldwyn-Mayer studio. Designed by Camera Chief John Arnold, A.S.C., it features not only unusual versatility but highly advanced engineering design. In many respects it differs radically from all accepted practice.

The device is of the crane-arm or boom type, with a boom 9 feet in length carrying an underslung camera mounting. The camera may literally be laid on the stage floor, or lifted to a maximum height of 16 feet. The entire boom arm may be raised or lowered bodily, by means of a motor-driven, helical hoist.

The boom arm rotates freely through a full 360 degree horizontal circle, while in addition the camera-head may, by an independent, extra quick-action pan movement, be panned through a full 360 degree circle. The tilthead likewise operates through a 360 degree vertical circle. The device is considerably lighter, and may be operated much easier than any comparable unit.

Radically new principles of construction have been employed throughout, and full use has been made of the modern, lightweight, high-tensile alloys and stainless steels.

Tubular Chassis

The chassis is of unusually simple tubular construction. Instead of the usual channel sections conventionally employed for this purpose, the main frame consists of a single tube of high-tensile steel.

Welded to this, at right angles, are two smaller tubes forming the axles. No springs are employed, as these devices are used invariably on special plank or metal tracks, and it has long since been found that any form of springing introduces an undesirable unsteadiness, especially with the camera at the end of a long boom.

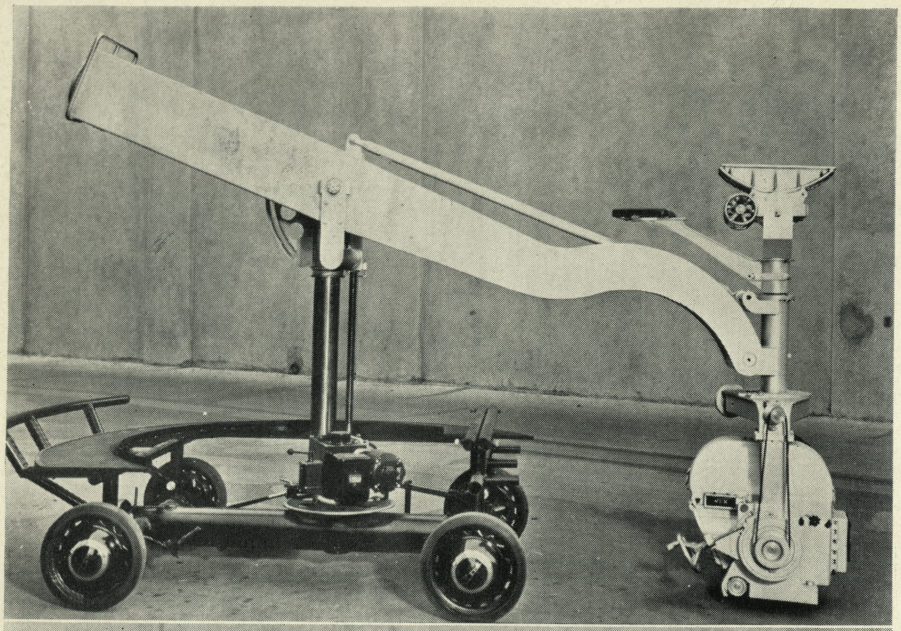
All four wheels are fitted with solid-rubber truck tires, and are mounted in conventional steering knuckles. The rear wheels, however, are at present locked in a non-steerable position, though the design makes provision for rendering them steerable if any future need should arise.

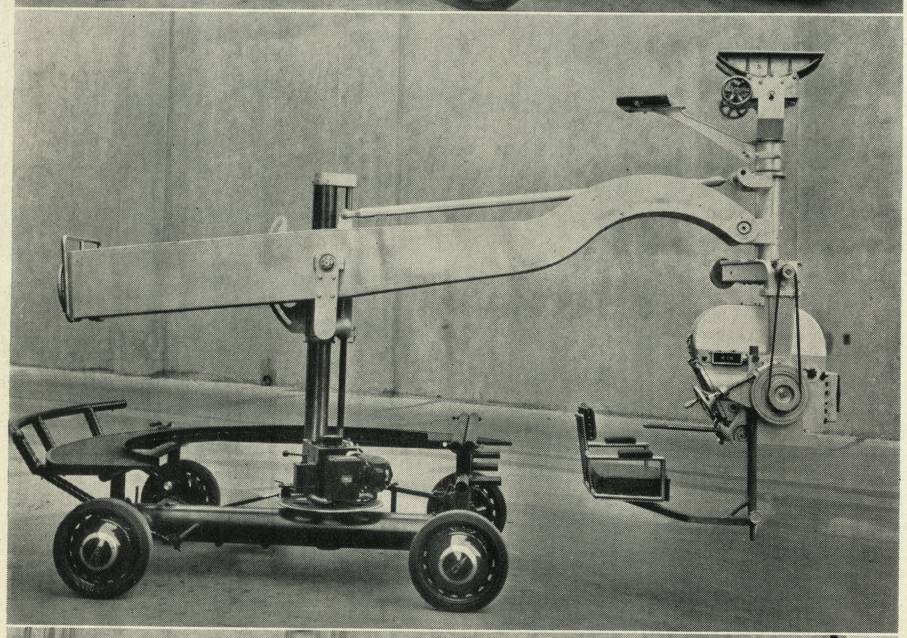
The front wheels are steerable, being controlled from an automobile-type steering wheel mounted before an underslung seat on the left side. The design is such that the steering wheels may be turned almost parallel with their axle, for sharp maneuvering.

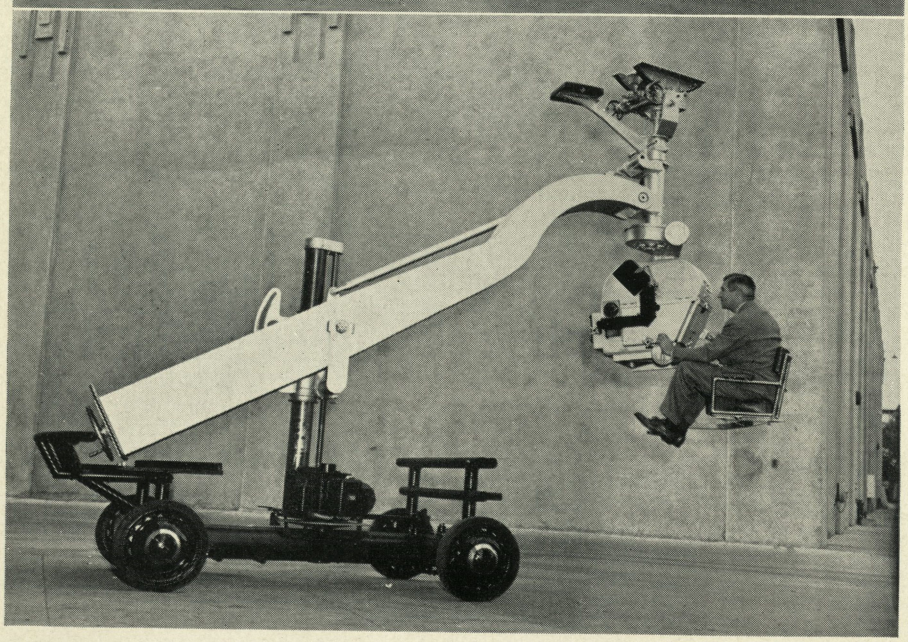
A fifth wheel is provided at the rear of the tubular main frame. This may be dropped down to raise the rear end from the rear wheels, so that the device can be turned in its own length, or moved sidewise into position. All four service wheels are ball-bearing equipped.

"Rotambulator" Type Hoist

Extending upward from this tubular frame is a tubular vertical member.







Top, with the new boom and underslung camera mounting, the camera may literally be lowered to the stage floor.

Center, at ordinary elevations the boom may be used in place of conventional tripod or perambulator, and leaves space around camera absolutely free. Note upper mounting for a second camera.

Bottom, at maximum elevation, the upper camera is sixteen feet above the ground. In this photograph, however, the boom arm has not been raised to the top of its hoist-travel. Note wheel at left end of boom by which counterweight is shifted for balancing purposes, and power-driven helical hoist to raise or lower entire boom-arm assembly. Photos by Durward Graybill and Frank Bjerring.

Upon this is mounted a power driven helical hoist strikingly similar to that employed in the "rotambulator"—another of Arnold's inventions, by the way.

The mounting of the crane arm slides up and down this main shaft in a friction mount. It is propelled upward or downward by a suitably proportioned screw paralleling the main shaft.

This screw or helix is rotated by a three-quarters h.p. D.C. motor which is controlled through a General Electric D.C. reversing circuit and controller. Automatic stop switches limit the upward and downward travel of this unit.

This hoist is not primarily intended for changing the height of the camera during a scene, but instead for more accurate positioning, after which the boom arm raises or lowers the camera. The drive, therefore, while quiet, is not noiseless. In addition, it is low-geared, to simplify construction.

Stressed-skin Crane Arm

The crane arm itself embodies a type of construction never hitherto applied to this type of studio equipment. Instead of the conventional girder or box-truss construction, this arm employs a stressed-skin or "monococque" construction combining unusual rigidity with extremely light weight.

The arm is constructed of four ten-gauge sheets of high-tensile steel, welded together to form a long, tapering box girder. This boxlike construction is reinforced at approximately 6-inch intervals with transverse bulkheads of the same alloy, welded into place.

The result is a boom of unusually light weight, yet of remarkable strength. From an engineering viewpoint it is strikingly similar to the monococque fuselages of the most modern transport and racing airplanes, in which the bulk and weight of longitudinal girders are eliminated by a skin strong enough to withstand the stresses normally taken by longitudinal beams, and reinforced with stiffening transverse bulkheads.

Underslung Camera Mount

The outer end of the boom arm curves upward to afford increased clearance. At its end is the camera mount, which is of the underslung type.

(Continued on Page 572)

Reeves Builds 16-35mm. Developer

WITH the increasing use of 16mm. film, both in the form of reduction prints, dupe negatives and prints, and direct 16mm. negative and prints, many commercial and private laboratories are being confronted with the technical problems of handling both standard and sub-standard film with a minimum of equipment.

In large plants, these problems are minimized, since separate units, especially devoloping machines, can be devoted to each class of work. But in a majority of the plants doing such work, conditions seldom permit such a practice. It is highly desirable that such equipment be able to process both 35mm. and 16mm. film, and if possible both negative and positive, interchangeably. But several mechanical problems make this difficult.

Recent modifications in the design of the well known Art Reeves automatic developing machine are held to eliminate these difficulties, and to permit the machine to be used interchangeably for processing all types of film.

One of the outstanding practical problems has been simplifying the operation of rethreading the machine when changing from 35mm. to 16mm. film. In most conventional designs, this must be done by hand, involving both trouble and loss of time.

The rollers which carry the film through the machine are of recessed construction, with the standard film carried on the outer edges, and 16mm. riding within the recessed portion. Due to this construction the 16mm. film, moving on what are in effect smaller rollers, travels at a lower speed than the 35mm. film.

Compensated Take-Up

Once the machine is completely threaded with film of either size, this differential is of no consequence: but when 16mm. is connected to a strand of 35mm. already in the machine, and the latter is used to pull the smaller film through the unit, a serious problem arises.

The take-up, which is proportioned to the travel of the larger film through the machine, tends to pull the strand through faster than the smaller roller-segments can feed the 16mm. film through. The result is usually enough tension to snap the strand.

In the Reeves machine this is now compensated by an additional film-loop between the dry-box and the take-up reel. This passes through a driving roller which is so interconnected with the drive and take-up reel that the take-up can only revolve at a speed coordinated with the lower peripheral speed of the rollers when threaded with 16mm. film.

Thus the take-up tension remains normal at all times. With this refinement, it is not only possible to use the length of 35mm. film or leader in the machine to rethread it with 16mm. leader, but to clip a roll of 16mm. film to the end of a length of 35mm. film being processed, and to develop 16mm. and 35mm. consecutively, with no more delay than occurs in clipping a fresh roll of standard film to the end of the strand.

Plan of Art Reeves inter-changeable 16mm.-35mm. developing machine. Dotted line at take-off end indicates path through compensating roller.

Wide Range of Developing-Times

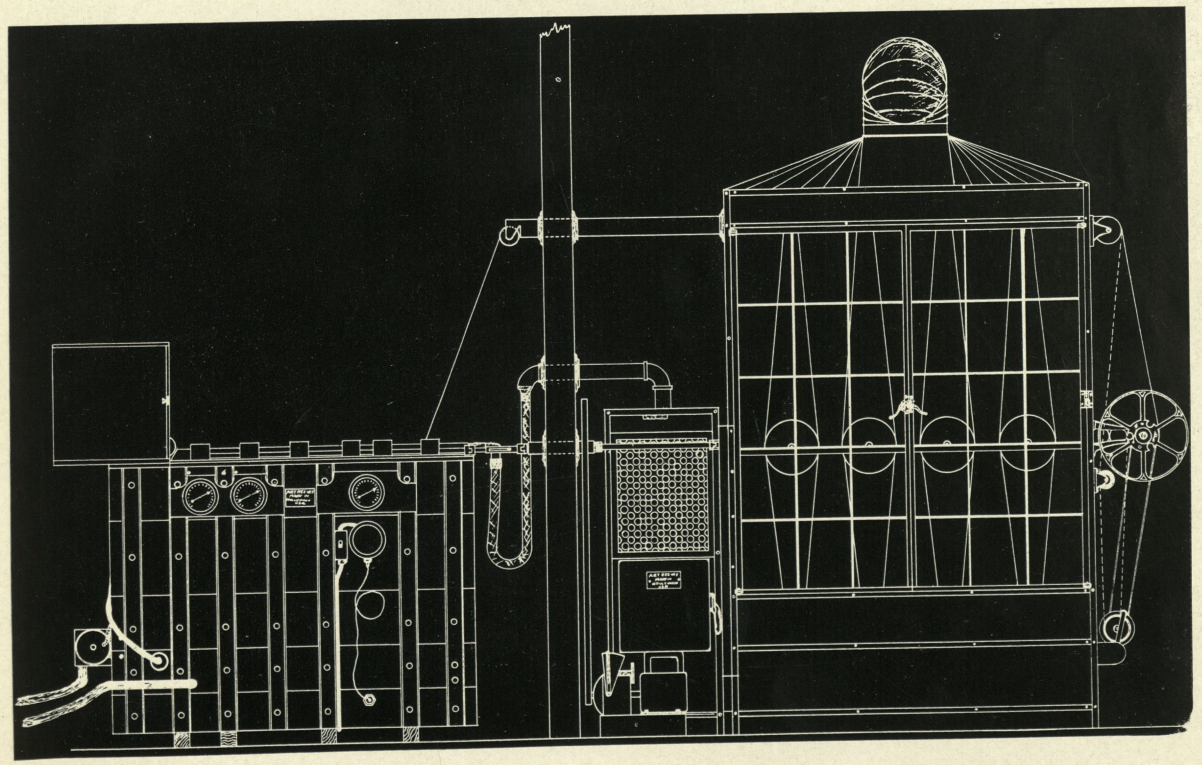
The fact that 16mm. negative, for the best results, usually requires processing in solutions of greater fine-grain characteristics than those ordinarily used for 35mm. negative raises another problem. These ultra fine-grain developers almost always require a considerably longer developing time, often double that normally used for 35mm. negative.

In the Reeves machine this type of specialized treatment is made more feasible by the use of an infinitely variable speed control. This consists of a special transmission-unit between the driving motor and the machine. It permits variation of developing time between two and 20 minutes.

The machine is further instantly interchangeable between positive and negative processing. Separate tanks are provided for the positive and negative solutions. Both of these sections are normally kept threaded at all times.

In the section not in use, the film leader is simply disconnected from the strand, and allowed to hang loosely in the tank, with the two ends held in

(Continued on Page 566)



Miller's 'Bluebird' to be Shown on Road

ARTHUR MILLER, A.S.C., finished work during November on Twentieth Century-Fox's production of "Bluebird," famous phantasy of Maurice Maeterlinck, Belgian writer. The cast was topped by Shirley Temple. The subject was made in a pretentious manner, befitting the elaborate stage presentation in New York at the Century Theatre thirty years ago and the rank of the author. Decision was reached during the past month by the production company that the picture will not be released in the usual manner. Rather so satisfied is the company of the picture's size it has determined to send it out as a road-show or special.

Miller, by the way, was the photographic winner of the Reporter's poll for September, taking the honors for his work in "The Rains Came." He won it in the face of stiffest competition.

"In photographing the story of 'The Rains Came' there were many elements entering into the problem," declared Miller when word of the award was handed him. "Of course, after you got about a quarter of the way into the picture the rains started and from that point they didn't do anything else but keep right on.

"That was but one side of it, though. There was a good story, and there was a good director, Clarence Brown, who is a nut for realism. Aside from that he has no particular likes.

"I did have a feeling now that you ask when working on the picture that I was doing a better job than had come my way in years.

"Let me put that in another way. I didn't feel that I was any way any better or any different from what I usually tried to do and to be, but really was taking advantage of the great number of opportunities that were being laid in my lap."

The making of a picture today is very much different from what it was when Arthur Miller started behind a camera. For that was quite a while ago, before the days of big companies. It was in the days before that of the cinematographer, when being a cameraman meant also working in the laboratory, of learning all the ins and outs of the business.

Thirty years ago a mere lad went to work for Herman Collie, who under the name of the Crescent Film Company had a small studio and lab in Prospect Avenue, Brooklyn, where at the same time, by the way, lived the man who is putting this tale on the typewriter—less than a mile away.

The company was affiliated with B. & K.—Baumann and Kessel in fact, in the earlier days well known to all acquainted with screen lore. Under Fred Balshofer, now living in Hollywood, the lad Miller was assigned to work at and around the camera and the laboratory.

The studio by day served as a beer garden at night. The furniture was used by day for the purpose of properties, by night for the comfort of the beer hall patrons. Pictures were shot in the daytime and developed and printed in the lab at night.

So much information had young Miller acquired through the training of Balshofer by 1911 that he was offered an opening by the Gaumont News—and which he accepted.

In 1912 he transferred to the Pathe Studio in Jersey City, where he photographed the serial, "The Perils of Pauline," featuring Pearl White. This was one of the earliest of serials. Crane Wilbur, hero of "Perils of Pauline," is now at the Warner Brothers' studio directing shorts.

George Fitzmaurice, one of the first scenario writers in any studio, was elevated to a directorship, and Miller was assigned to travel along with him. In 1919 Miller came to Hollywood with Fitzmaurice to work for Goldwyn. In 1925 he went to the C. B. DeMille studio, remaining for six years. After less than a year at Warner Brothers he removed in 1932 to his present home, at Twentieth Century-Fox.

Hollywood Goes To South America

SOUTH AMERICA will not have to come to Hollywood to secure motion picture equipment. Hollywood is taking the equipment to South America. Lucio Villegas, who has been working in pictures for the last twelve years, has been commissioned by three prominent Hollywood firms to visit South America in the interest of these manufacturers.

The firms are Mitchell Camera Corporation, Art Reeves motion picture equipment, and the Mole-Richardson lamp and other equipment. Villegas is a native of Chile, and is well acquainted throughout South America. He will be gone four months and will visit Peru, Chile, Argentine and Brazil.

With the minor equipment the traveling representative is taking along so to speak with him he will be able to furnish complete studio and laboratory equipment to South American producers.

quality of many
ould conceivably
the flash.
as this advancement it
something to be desired. This was
the use of synchro-flash technique for
making extreme high-speed acting shots.

Ironically, this type of work is one which could perhaps most benefit by the use of synchronized flash exposures.

As is well known, the almost universal camera for making action stills is the 4x5 Speed Graphic. This is fitted with a Compur inter-lens shutter and a Graflex focal-plane shutter, which may be operated independently of each other.

In current synchro-flash work, the Compur shutter only has been used. This is quite satisfactory for most work, but by no means adequate for high-speed work. The maximum speed of this shutter is only 1/300th second, and in many studios it has been found wisest to restrict these exposures to a maximum of only 1/200th second, to guard against mechanical failures. Such speeds are obviously not always adequate for stopping really fast movement.

Shooting Dance Routines

Perhaps the most notable phase of this problem is that of making stills of the extremely fast-moving dance routines of such stars as Eleanor Powell and Fred Astaire. "Stopping" their movements demands high shutter speeds. This, in turn, requires more illumination than is ordinarily available on a set.

The most commonly used cine emulsions are Eastman Plus-X and the new DuPont Type II, both of which have a Weston artificial light speed rating of about 32. According to the methods of the individual director of photography involved, our sets are illuminated to give an exposure with these materials ranging from f.3.2 to f.2.3 at the fixed speed of 1/50th second.

While the still photographer has the slight advantage of using emulsions which, like Eastman's Super-Panchro Press, have an artificial light speed of Weston 64, this still is inadequate. The illumination-levels commonly used require a minimum exposure of from 1/30th second to 1/50th second at f.4.5—the average maximum aperture of still-camera lenses—and around 1/10 second when the lens is stopped down enough to give the required depth of field.

High Illumination Needed

Obviously, a tremendous increase in illumination would be needed to permit satisfactory speed stillwork. High as the illumination levels demanded for Technicolor or slow-motion cinematography may seem, they are not yet enough for high-speed still work of this type.

For instance, when we were making some boxing shorts with Max Baer, and had the set lit for extreme slow-motion cine work, I found that the minimum exposure I could give my stills was about 1/135th second; if I shot at even 1/150th

These synchro-flash stills of Fred Astaire are the first high-speed action shots of dance-routines actually made on the set. Note how the 1/550th second focal-plane synchronized flash exposure "stopped" even the rapid movement of hands and feet. Photo by Milton Brown.

second, my negative was too thin to be used.

The extremely high unit intensity of modern flash-globes—1,500,000 lumens or more—woud obviously solve this problem. But since these globes could not be successfully synchronized with the focal-plane shutter, which alone gave the higher, movement-stopping speeds, the problem seemed very little nearer solution.

Since the introduction of the wire-filled type of flash-globes, which could be synchronized with the focal-plane shutters of miniature cameras like the Leica and Contax, there has been at least the possibility of using miniatures for this type of work.

But many of us have found these cameras impractical for studio still work. At M-G-M, for instance, we have come—from sad experience—to regard the 4x5 Graphic as the smallest practical camera for good studio still work.

Until recently, we have taken the only possible way out of the problem. We have made many productions which featured Eleanor Powell's nimble feet; and obviously, we had to have still pictures of her dance-routines.

Therefore she has performed her routines especially for the still cameras, on an outdoor set with white walls and a white floor, so that we could employ exposures fast enough to stop her motion.

Even so, it was frequently necessary to use a dozen or more reflectors to "fill in" shadows and give us the modeling light necessary for good photography. Facing such a battery of dazzling reflectors is difficult, even for the most willing trouper.

Miss Powell was no less eager than we for good pictures; but rarely, indeed, did we get a series of pictures that was not blemished by squints and blinks directly attributable to those blinding reflectors.

Use New Focal-Plane Gun

During the past few weeks, however, a new type of flash synchronizer has been developed, exclusively for synchronizing Graflex-type focal-plane shutters. This is the Kalart "Sistogun," invented by Philip DeL. Patterson and refined by newspaper photographer Ernest Sisto. It is the first practical synchronizer of this type to appear.

Needless to say, we have been experimenting with this new accessory; and the experiments have proved gratifyingly successful.

The Sistogun itself consists of a very simple contact mechanism actuated by the movement of the curtain-winding knob of the Graphic's focal-plane shutter. To be precise, the winding knob acts on a small, curved cam to hold the flash-firing contact open. As the knob revolves with the shutter's normal travel, the knob slides off the cam, closing the contact.

The construction of the device is such that the contact is tensioned only by a very delicate hairspring, and so, since it contacts the shutter mechanism only at the start and finish of its travel, it cannot exert any braking or retarding action on the shutter.

An additional contact is actuated by a plunger operated by the shutter-release lever: only when both contacts are closed can the flash-globe be fired. Therefore even though the primary contact is closed when winding the shutter, the flash cannot be set off accidentally.

Adequate provision is made for adjusting the device for precise synchronization. Two separate adjustments are provided: one to compensate for any ordinary variations in the positioning of the winding knob; the other to secure absolute synchronization.

In some instances it may be necessary to make further compensation for shutters equipped with non-standard curtains or curtains of older types; but in general these devices may be fitted by any moderately experienced camera mechanic.

Synchronizing High Speeds

The Sistogun, we have found, is a natural complement to the conventional lens-shutter synchronizer. It may be used with any battery-box unit that has or can be adapted to take the telephone-type connectors with which it is supplied.

Ordinarily it may be used with a battery-box of Kalart manufacture, using either 4½ or 9 volt batteries.

The conventional, inter-lens shutter synchronizers provide for normal synchro-flash work up to speeds around 1/200th second: we have found the new Sistogun, at least with the camera we have fitted it to, works excellently to speeds up to and including 1/1000th second. Thus we can now utilize virtually the entire range of speeds possible with the Graphic.

Perhaps the most notable of our tests of this device are a series of high-speed shots of Fred Astaire doing one of his dance routines from "The Broadway Melody of 1940." These are the first speed-shots of a dance routine we have ever been able to make on an actual interior set. They were made on the set, soon after the dance sequence had been filmed.

Movement Stopped "Cold"

The satisfactory exposure values of our still negatives are a tribute alike to the accuracy of the synchronizer and the illuminating power of modern flash-globes. They were made on Eastman Super-Panchro Press cut film, at an exposure of 1/550th second at f.8.

In some instances, some or all of the

(Continued on Page 564)

Speed-flash still of Fred Astaire in a dance routine from "Brooadway Melody of 1940." Exposure, 1/550th second—at f:8. Photo by Milton Brown.

REPRODUCTION OF FILM EXPOSED 40 YEARS AGO

SOME time since the editor of this magazine received from a theatre manager up in Idaho Falls, Idaho, a letter in which with its inclosure he was certainly interested. The message was from A. B. Hager, manager of the Rex Theatre of that town. The letterhead states the Rex is "playing the best in vaudeville, musical comedy and road shows and feature pictures" and that "we take motion pictures for advertising, commercial and educational purposes —cameramen will go anywhere."

With that brief introduction, setting the stage, so to speak, here is the letter:

"I saw some shots in an Eastern trade magazine a couple of weeks ago—that of Bill Hart, taken in 1914; also Cecil DeMille, looking through one of his first cameras with which he made 'The Squaw Man.' And the titles under those pictures sounded like ancient history.

"I am herewith inclosing you some clippings, which I found among my souvenirs, and which have a few years on the above-mentioned subjects. The cut-outs, which I am herewith inclosing, are of the Fitzsimmons-Jeffries fight pictures, taken June 2, 1899, at Coney Island, New York.

"Incidentally, these same pictures were shown in Los Angeles the same year, as my brother and I had a store show in Spring Street, between Second and Third. If you care to use these in your magazine you are welcome to do so, or possibly some of the ace cameramen in Hollywood would like to see how they made pictures forty years ago. At any rate, if you can't make use of them, file same in your wastebasket and we will still be friends."

Pre Fine Grain

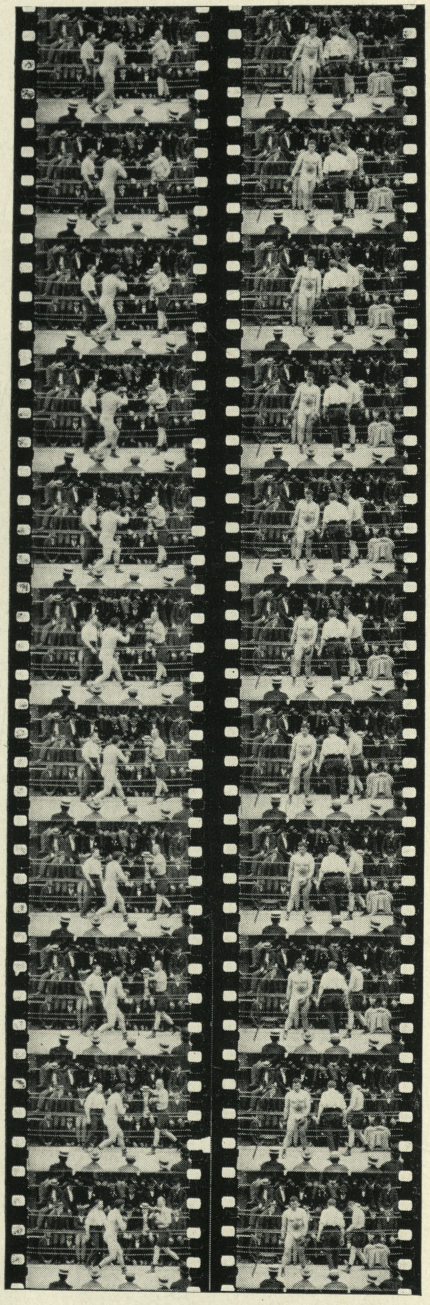
The inclosures, of course, were the pictures here shown, positive prints of the historic scrap—and which, by the way, the editor was advised by a very wise and also very efficient photofinisher the chances were against a reproduction in the magazine. But last month we had occasion to inquire of the engraving department at Wolfer's plant if a negative could be produced from a couple of positive prints of motion picture film indicating the contrast between fine grain positive and pre-fine grain positive.

The answer promptly was returned "We can try." Reference to Page 487 of the November issue will show how that was accomplished. Which result caused the wily Bill Stull to inquire:

"If Wolfer's could do what they did with that fine grain stuff last month what is to stop them from doing the same with that positive from your friend up in Idaho Falls—that of the archaic prizefight?"

And so here it is. A slight reduction in size was required. The film measured eight picas wide, which doubled up would have meant sixteen picas. In a fourteen-pica column it meant reducing sixteen to fourteen, which represents the difference between the reproduction and the original.

In the picture it will be noticed in the first column the somewhat bared crown of Fitzsimmons is shown facing the camera, while in the second column Jeffries is shown walking toward the camera.



Reduction from film of Fitzsimmons-Jeffries fight June 2, 1899, in Coney Island, New York.

We do not know the name of the cameraman who exposed these pictures on that summer night forty years ago, but undoubtedly a recital of the incidents of the evening would make interesting reading.

To Mr. Hager, up there in Idaho Falls, we extend greeting—and thanks for the memory: for the reminder of his own good self; and of four thirsty New York Times printers, strolling around Coney Island on a night off—and sad to relate the night BEFORE payday—watching the crowds entering the auditorium; pooling issues, every last one of 'em—and keeping right on strolling.

Metropolitan, St. Paul

Harold E. Piggott, secretary of the Metropolitan Cine Club of St. Paul, sends to club members an attractive and readable bulletin at the first of each month.

In his November issue he states the Metropolitan is a year old and that the club now possesses thirty members. The club, he says, is the only one of its kind in the city, made up exclusively of men, and, he says further, "may we add men who really make moviemaking their hobby."

"Among the services rendered by members of our club during the past year," says Mr. Piggott, "are shows put on for 'shutins' at some of our hospitals; the F.B.I. Police training sound pictures were run for one continuous week, at Police Headquarters for the entire Police Department and the highway patrolmen; a 400-foot picture was made for the Goodwill Industries, which is and will be shown all winter to the various service clubs and churches, and for the Department of Education a 400-foot reel was taken of the Lindsey School for Crippled Children's annual picnic.

"A broadcast entitled 'Moviemaking for the Average Person' was made over Station WMIN, which was well received by the public.

"It has been decided to make a Club film, consisting of a series of 'gags.' Each member was requested to submit a gag which could be shot with one 'set,' the purpose of course being to give every member an opportunity to participate and thereby study lighting, make-up, camera technique, composition, editing and titling."

Cinema Club of San Francisco

The November meeting was held on the 21st at 1355 Market street and was divided between a showing of two Kodachrome pictures and a showing of Kodachrome slides. The pictures were "The Grand Canyon and Monterey Peninsula" by Member Russell A. Hanlon and "From the Mountains to the Sea" by Member Denis Donohoe.

There was selected a nominating committee of five to suggest officers and directors for the coming year.

Rise of the American Film

Lewis Jacobs in remarkable book names as tops Melies, Porter, Griffith, Chaplin and Disney

The Rise of the American Film
By Lewis Jacobs. Harcourt, Brace & Co., 383 Madison Avenue, New York. 585 pp. Illustrations, 48 pp. $4.50.

LEWIS JACOBS has accomplished a great work in the writing of this book. He has begun at the beginning. Painstakingly he has pored over the one-time limited trade papers, film catalogues, heralds, etc. By means of these he has kept track of all the moves and changes, he has given importance to actions that at the time of their happenings were not regarded as of importance.

He has given credit for things accomplished to men long forgotten. He renews permanently to memory the names of many men and some women who might have been passed by in the quick changes.

Particularly difficult is it going to be to give a fair resume of the multitude of things that he relates. And this is a good place to say that for those who have been at all active at any time in the past thirty or thirty-five years around the picture business they are not going to be happy unless they own and have stowed away in their own homes a copy of this book, and that goes just the same if all these years they have been on the outside. That's how good it is; the best yet.

Mr. Jacobs in his Acknowledgment records his thanks to those persons who have given him valuable assistance in the preparation of the book. In particular he mentions Miss Lillian Willis, as well as Miss Iris Barry, Jay Leyda and Miss Helen Grey of the Museum of Modern Art Film Library. It was the Museum which gave the author the privilege of reviewing films of the past in its collection, for which previously there had been no agency in existence.

Another factor which aided in the compiling of the book were the files used by the Federal Writers' Project in New York which made accessible the work of the Motion Picture Bibliography unit in the compilation of the first volume of the Film Index.

A better conception of the extensive contents of the book will be had by perusing the following list:

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1. First Stages: Trade, Technique, Pictures
2. George Melies: "Artificially Arranged Scenes"

Part Two FOUNDATIONS (1903-1908)

3. Art: Edwin S. Porter and the Editing Principle
4. Business: Toward National Expansion
5. Social: First American Story Films

Part Three DEVELOPMENT (1908-1914)

6. The Struggle for Control
7. D. W. Griffith: New Discoveries
8. First School of Directors: Specialization of Crafts
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Part Four TRANSITION (1914-1918)

10. Large-Scale Operations
11. D. W. Griffith: The Birth of a Nation and Intolerance
12. Toward Style
13. Charles Chaplin: Individualist
14. Movies in the World War
15. Growing Sophistication of Film Content.

Part Five INTENSIFICATION (1919-1929)

16. Big Business
17. Additions to Film Art
18. A Throng of Directors
19. The Decline of D. W. Griffith
20. Films of the Post-War Decade

Part Six MATURITY (1929-1939)

21. New Affiliations and Consolidations
22. Refinements in Technique
23. Contemporary Directors
24. Walt Disney: Virtuoso
25. Significant Contemporary Film Content

Pulses Quickened

Iris Barry says in her preface that hundreds of motion pictures are made each year, tons of newsprint commend them, millions of people see them. And there in a sense, she goes on, "the whole thing comes to an end: The films disappear from sight, leaving behind little more than the wholly incalculable effect they have had on their multitudinous audiences.

"Astronomical numbers of tears have been shed, pulses have quickened, unrealized associations have been set up, but a medium that bears so transient an appearance does not readily enjoy respect or provoke reflection, since it is about as difficult to compare one dream with another as to measure film against film in recollection.

"The liveliest and most popular art of the twentieth century, however, deserves better than this. Politics and history itself are ephemeral, but are not ill-considered or neglected for that reason: and for that reason the motion picture is by no means an inconsiderable element in contemporary society. More than this, in a most curious and striking way the film actually reflects contemporary history as it flows.

"'The Rise of the American Film' is really a romance. It is the colorful tale of as typical a group of Americans as one could hope to hear of, men and women of every possible kind of nature and origin irresistibly drawn into a new kind of creative expression suited to a machine age."

Shakespeare's Birthday

It may be of passing interest to remark that the moving picture as we know it was seen for the first time in America on April 23, 1896. April 23 may be recalled as the date usually ascribed as the birthday of Shakespeare. It was an auspicious date, as has been amply demonstrated.

The scene was Koster & Bial's Music Hall in New York. There were shown, as reported in the New York Times, "two precious blond young persons of the variety stage, in pink and blue dresses, doing the umbrella dance with commendable celerity. Their motions were all clearly defined. When they vanished a view of the angry surf breaking on a sandy beach near a stone pier amazed the spectators.

"A burlesque boxing match between a tall, thin comedian and a short, fat one, a comic allegory called 'The Monroe Doctrine,' an instant of motion in Hoyt's farce 'The Milk White Flag,' repeated over and over again, and a skirt dance by a tall blond completed the views, which were all wonderfully real and singularly exhilarating."

To Thomas L. Tally of Los Angeles is given the credit for leading the way in establishing moving pictures as distinct feature attractions. In 1902 he began exhibiting films only, charging 10 cents admission, advertising "The Electric Theatre. For Up-to-Date High Class Motion Picture Entertainment Especially for Ladies and Children."

Six Cameramen

In the beginning pictures were made in the streets. There were no studios, and about the only "offices" required were those devoted to a laboratory. According to Jacobs, and writing with entire truth, the making of pictures depended entirely upon the ingenuity and ability of the cameraman. He was director, photographer, laboratory expert and sometimes even the leading actor.

Charles Chaplin: Individualist

TO think of Charles Chaplin is to think of the movies. Yet this unique actor, director and producer has added little to movie technique or movie form. He has been not a technician but a pantomimist, a commentator, a satirist, a social critic. His artistic problems have not been cinematic; they have been personal, always being solved by feeling. His importance lies not in what he has contributed to film art, but in what he has contributed to humanity.

If he is negligible as a movie craftsman, if he has evolved no new formal aspects to enrich the medium, he has created many moments to enrich society. Chaplin will always be known for his social outlook, his insight into human nature, his pantomimic skill, his ingenious development of the incident, and his evocation of a mood. It is these qualities rather than any plastic contributions which have made him significant as a screen artist.

In the history of the American film no other single personality has so endeared himself to the world as Charlie Chaplin. His presence is as much alive as ever in the thousands of 16mm. revivals of his work. Every generation takes him to its heart anew. As with all great characters, one sees in Chaplin what one brings to him. Children love him for his humor; adults are moved by deeper meanings, too.

Every man recognizes in Chaplin's experiences his own dreams, illusions, problems, disappointments. This little tramp does what most of us would like to do and see ourselves as doing, but yet cannot bring ourselves to do. His frustrations are mankind's; his successes, universal triumphs.

When he laughs, races and nations shout with him; when he is sad, a sorrowful wail encircles the globe. So readily can his slightest gesture evoke human emotions that he can be truly called the film's miracle man.

Walt Disney: Virtuoso

OF all the directors in motion pictures today, Walt Disney is perhaps the most renowned and acclaimed. Undaunted by Hollywood superstitions, undeterred by money needs, Disney has brought to American films a personal touch, a zeal for quality, an appreciation of artistry, and a disdain that is almost a fear of the "formula" picture. That his convictions have been matched by a distinct talent has been aptly and fortunately proved.

Disney has made his animated cartoon perhaps the finest expression of motion picture art in contemporary America: this despite the fact that so far only one of the hundreds of Disney cartoons has been of considerable length. His pieces have brought unanimous praise from artists, intellectuals, children, workers and everyday people the world over, being singled out even above superior dramatic films.

In the realm of films that combine sight, sound and color Disney is still unsurpassed. The wise heir of forty years of film tradition, he consummates the cinematic contributions of Melies, Porter, Griffith and the Europeans. He has done more with the film medium since it added sound and color than any other director, creating a form that is of great and vital consequence not only for what it is but for what it portends. He is the first of the sight-sound-color film virtuosos, and the fact that he is still young and still developing makes him an exciting and important figure to watch.

Disney not only is the pace setter in his own particular specialty, cartoon animation, but in skill and imagination he outranks even the craftsmen in the realistic story-telling business. His remarkable ability to produce hit after hit without repeating himself or consolidating his successes into cliches speaks for his integrity as well as his ambition.

No one knows how far, under the circumstances, Disney may yet go—or if, perhaps, he now is in his prime.

Opening of respective chapters on Chaplin and Disney in Lewis Jacob's "The Rise of the American Film"

"In these early years," says the author, "America had few movie cameramen—at most six. Three of these were to become important figures in the history of American motion pictures: Edwin S. Porter of the Edison Company, soon to become the leading directorial figure in the American screen world; J. Stuart Blackton of the Vitagraph Company, later an outstanding pioneer director; Billy Bitzer of Biograph, yet to be famed as the cameraman of D. W. Griffith.

"The first cameraman to show individuality of technique was none of these three Americans, however, but George Melies (Me-lee-ays) in France. His films, particularly those from 1900 on, pointed the way for a creative technique and led to the discovery of film dramatization, which was to change the whole course of moviemaking."

The early cameraman's problem was to get a picture. His equipment was bulky, and was prone to get out of order. Conveying it from point to point was a job. Once set up, it was seldom changed for another view. The earliest record of "panning" was in an Edison Catalogue for 1901-02 and was listed as a "Panoramic View":

"New York in a Blizzard — Our camera is revolved from right to left and takes in Madison Square, Madison Square Garden, looks up Broadway from south to north, passes the Fifth Avenue Hotel and ends looking down 23d Street West."

Porter's "The Life of an American Fireman," 1902, and "The Great Train Robbery," 1904, are both treated at length. The author points out these two pictures assured the permanence of the movies. These were followed in 1906 with "The Dream of a Rarebit Fiend," in which technical photographic tricks lifted it to a level which no other picture had attained up to that time.

"Rarebit" Advanced

Porter undoubtedly was stimulated by Melies' work, but his "Rarebit" had a cinematic style more advanced and distinguished than the Frenchman's. Both men had used a variety of camera devices—stop motion, double exposure, masking, moving camera, dissolves—but it was Porter's knowledge of editing that gave his effects a fluency and rhythm lacking in others.

In the early days it had been the cameraman who directed. Gradually the latter's work was to become specialized and the director's broadened. One of the first directors other than Porter and Blackton was Sidney Olcott, formerly an actor, who in 1923 was selected as one of America's ten best directors. Also there were J. Searle Dawley, also an actor; Francis Boggs of Selig, from the stage, and Arthur Hotaling, with Pop Lubin since his peddling days.

The screen identification or at least the mentioning of the cameraman began about 1913, when Biograph named Billy Bitzer for his photography.

David Wark Griffith, who first acted in the movies in 1907 under the name of Lawrence (Larry) Griffith, concealing his own name until such time as he became famous if it should prove he was to be, directed his first pictures in 1908. In these he instituted several camera effects which not only have been in use ever since but probably always will be.

After making half a dozen pictures Griffith was moved to try some changes. He had been getting his bearings, so to speak. He was the first to change the custom of shooting without re-

hearsal, insisting upon the "waste of time," as it was considered, the "once-again" idea as it was to become known.

He now determined to try experiments. He took Jack London's "Just Meat," changing its title to "For Love of Gold." It was necessary to show the point, to make clear to the audience, at which the two thieves of the story began to suspect the other: the double exposure.

Birth of Full Shot

It was a convention that had grown up the camera always must be fixed at a viewpoint corresponding to that of a spectator in a theatre (the position known as the long shot); the other, that a scene had to be played in its entirety before another was begun (this was a direct carry-over from the stage).

Griffith decided now upon a revolutionary step. He moved the camera closer to the actor, in what is now known as the full shot, so that the actor's pantomime would be better visible to the audience.

It really was revolutionary at that time. It established the mobility of the camera, it made possible the breaking up of the scene into different shots, it made entirely unnecessary the former extravagant, unnatural and ridiculous gestures on the part of the actors.

For the next three months the full shot became a part of Griffith's repertory. In November 1908 after considerable thought Griffith went further. Although a closeup had been employed by Porter in "The Great Train Robbery" some five years before it had not been employed in the meantime.

In a screen adaptation of Tennyson's "Enoch Arden" by Frank Woods Griffith shocked the studio force by employing a closeup of Annie Lee's face as she awaited her husband's return. He followed this by an insert of a picture of the object of her thoughts —her husband cast away on a desert isle.

Criticism descended. To the charge it was jerky and distracting Griffith retorted that Dickens wrote that way. Biograph still was worried and continued so to be until the picture was sent out. Then to the company's surprise it was discovered the production had been singled out as a masterpiece and proved to be among the first American films honored by foreign markets as worthy of importation.

The positions of the cutback as well as of the closeup were secure.

Lighting in "Pippa Passes"

There is a story of Griffith's successful attempt at lighting in "Pippa Passes" well worth the reading, how he made morning, noon, evening, night.

Like the screen writer, the motion picture cameraman was called upon to develop and refine his work. As photography itself became a more responsible job division of labor became common; the laboratory work was now done by the cameraman's subordinates under his supervision. That the cameraman, now a man of position, wielded great influence in production is pointed out by Gene Gauntier, Kalem writer and actress of that day:

"It was the cameraman who held down the temperamental director and usually had the final authority on what could or could not be done. . . . Even as late as 1915 at Universal . . . there was a brief interval when the cameraman was given full authority over all phases of production."

Camera technique depended on good lighting and sensitive films, declares the author. "Lighting had been a most difficult problem," he goes on, "and it remained one as the practice of manufacturing movies in studios spread. The mercury-vapor lamps threw off a cold, hard light which bared every flaw in the scene and could not be balanced for tonal effects. Many attempts were made, notably by Griffith, to dramatize lighting to enhance the story, but progress was slow and difficult. As for the raw film stock it still remained 'contrasty' and slow; it could not register subtleties in tone."

As new companies went into production more cameramen entered the field. Henry Marvin, Max Schneider, Herman O'Brock and H. Lyman Broening were notable. Others, too, became famous. William Bitzer made successes out of Griffith's "crazy schemes." Tony Gaudio, cameraman for Laemmle, had a less creative director to work under, but was perhaps more sensitive to the variability of the medium and lasted longer than Bitzer in the industry. (He is still going like a house afire.—Ed.)

"Working with many directors, E. Cronjager, Charles Rosher, Faxon Dean, Victor Milner and John Seitz also made their start and today are still esteemed for their work."

"Cameramen today grapple less with engineering problems than with those of pictorial design and photographic values," says Jacobs. "Many have gained reputations not only as skillful craftsmen but as artists in their own right, a few have a style which often is the outstanding merit of a film.

"Cameramen work in groups of three: the first composes the lights and scene, the next, the operative cameraman, actually shoots the scene, and the third assists him. Often pictures employ several crews at one time.

"Of the hundreds of cameramen active now, many of the leaders have come up from the 'silent' days. New talent that have emerged are Karl Freund (The Good Earth, Camille), Karl Struss (Sunrise, Dr. Jekyll and Mr. Hyde), Leon Shamroy (You Only Live Once), James Wong Howe (Viva Villa, The Thin Man), Rudolph Mate (The Passion of Joan of Arc, Dodsworth), Ted Tetzlaff (My Man Godfrey, Swing High, Swing Low), Gregg Toland (We Live Again, Wedding Night), Ernest Haller (The Journal of a Crime, The Key), Ray June (Arrowsmith, Treasure Island), Joe Valentine (Three Smart Girls, One Hundred Men and a Girl).

"Other prominent cameramen are Ernest Palmer, Arthur Miller, Arthur Edeson, Floyd Crosby, Sol Polito, Leo Tovar, George Folsey and Joe Walker."

The author speaking of special effects technique says today Hollywood cameramen can reproduce practically anything in nature, as well as anything imagination can conceive.

Camera in "The Birth"

Much space is devoted to "The Birth of a Nation." The author says all of Griffith's earlier experiments are here consolidated—the use of the camera to build scenes, the pacing of shots, the sensitive manipulation of camera devices for transitions, simultaneous action, movement of all kinds—all fused by brilliant cutting, "demonstrating an unusual mastery of the movie medium."

During these years (1914-18) the cameraman was edged into the background by the star, the director and the scenarist, declares the author. "But Bitzer's work in 'Judith of Bethulia,' 'The Birth of a Nation' and 'Intolerance,' and the encouragement of various directors, awoke cameramen to the possibilities of their craft. They applied themselves energetically to experimentation—to composition, to lighting, and to developing the mechanical devices of the camera itself.

"After the war a number of former Signal Corps cameramen, including Victor Fleming, George Hill, Ernest Schoedsack, Joseph Von Sternberg, Alan Crosland and Wesley Ruggles became movie directors. . . .

"The first attempts to model with light—to bring out the best features of the players, to emphasize character, to reduce the prominence of irrelevant effects—were begun. Bert Glennon, Victor Milner, Sol Polito, Charles Rosher, John Arnold and Joe August were all experimenting with the mercury-vapor lamps then in use to make them more adaptable to modeling."

Diffusion Era

The author tells of the wide use that was being made of diffusion, to soften the physical defects of players. Gauzing the lens therefore became a usual practice. Alvin Wyckoff, Cecil De Mille's cameraman, introduced a spotlight effect ("Rembrandt" lighting) to create strong dramatic contrasts.

"The Rise of the American Film" contains over 225,000 words. Not any of them are wasted. They make good reading, interesting reading. It is reading the like of which it is quite certain no one will have found before—the story of the real men who made the pictures possible and the men who did the actual work.

It is a scholarly book, made rich by research. Lewis Jacobs easily is a hound for punishment, and he has taken a lot of it that the world may have a work on which it may rely.

It will go far to educate those who talk wisely of "appreciation" G. B.

Smoothing Scene Transitions

By ORMAL I. SPRUNGMAN

Photographs by the writer unless otherwise noted

Ray Rieschl, Minneapolis moviemaker, is shown with an 8mm. camera revamped with Wind-Bak for trick effects. Note fading rod lever with ring slipped over lens barrel.

IF your movie camera isn't equipped to fade, wipe, dissolve, iris, or just plumb shoot single frames, don't envy the owners of costlier stuff. Today, most any 8mm. or 16mm. outfit which shoots acceptable pictures can be revamped or rebuilt to provide most any trick at a price quite within reach of most any pocketbook.

Perhaps the one thing, above all else, that quickly characterizes the amateur movie is the abruptness or apparent choppiness which marks the break between two consecutive and often unrelated scenes. Here, for instance, is a typical long shot of some snow-dunked evergreens, followed by an immediate closeup of a youngster cupping a snowball, and then a homemade snow man pops into view.

The jump from one scene to the next is a bit disturbing. Such scene transitions could better be handled by fading in on the first snow scene, dissolving to the next, wiping off to reveal the snowball-snow man sequence, and finally fading out.

Several Methods

The fade is perhaps the best known method of handling scene transition, and many amateurs have been using it for years. There are two types of fades: the *fadein* where the darkened screen gradually grows brighter until the pictured image reaches its correct luminosity; and the *fadeout*, which is just the reverse.

Any one of several methods may be employed in making the fade. Simplest is to close down the lens aperture slowly to its smallest stop after sufficient footage has run off on the scene at hand.

This gives a satisfactory fadeout when shooting is done at the larger apertures ranging from f.3.5 to f.1.9, but when the scene being filmed requires a small aperture, say, f.8 or f.11, the fade to f.16 is hardly noticeable.

Some cameras, of course, have apertures which close entirely to give the ideal effect, but for those outfits not thus equipped the fade can be completed by lowering the hand or a piece of black cardboard over the lens after the aperture has been cut down to its smallest stop.

The fadein, naturally, is made in the opposite manner.

A fading glass is a handy accessory for securing the same effect. This consists of a rectangle of glass, slightly wider than the diameter of the lens barrel. One end of the glass is transparent, the other is opaque.

Smoked glasslike gradations run from the transparent area to the opaque, the general effect being that of reducing or increasing the brightness of the image as the glass is passed horizontally in front of the lens. Such fading glasses sell for around $2.

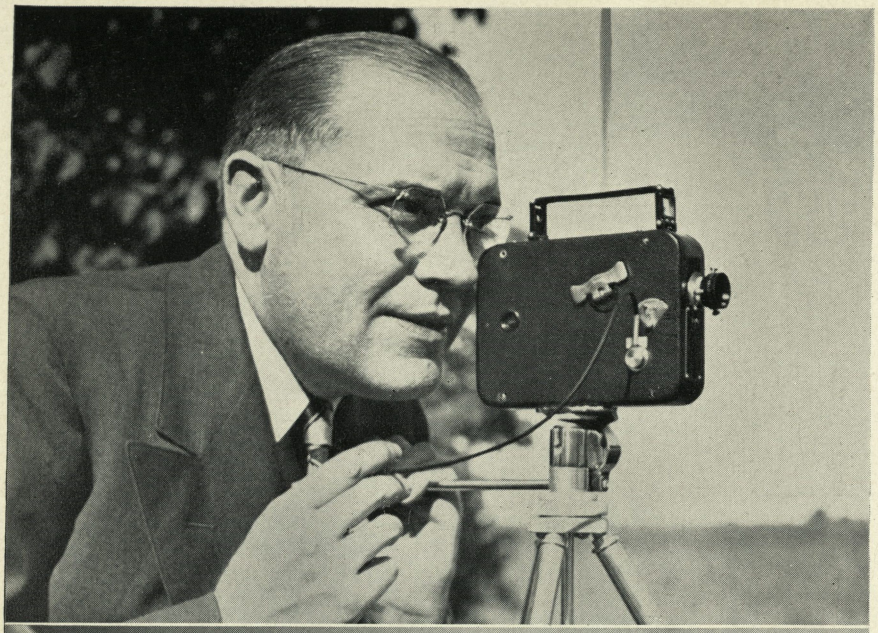
Clubmen Invent

Paul Frantzich, treasurer of the Minneapolis Cine Club, has evolved his own fading glass after considerable experimentation. He exposed a piece of sensitized film to light in such manner that one end would be overexposed, while the other would be unexposed, with full gradations between.

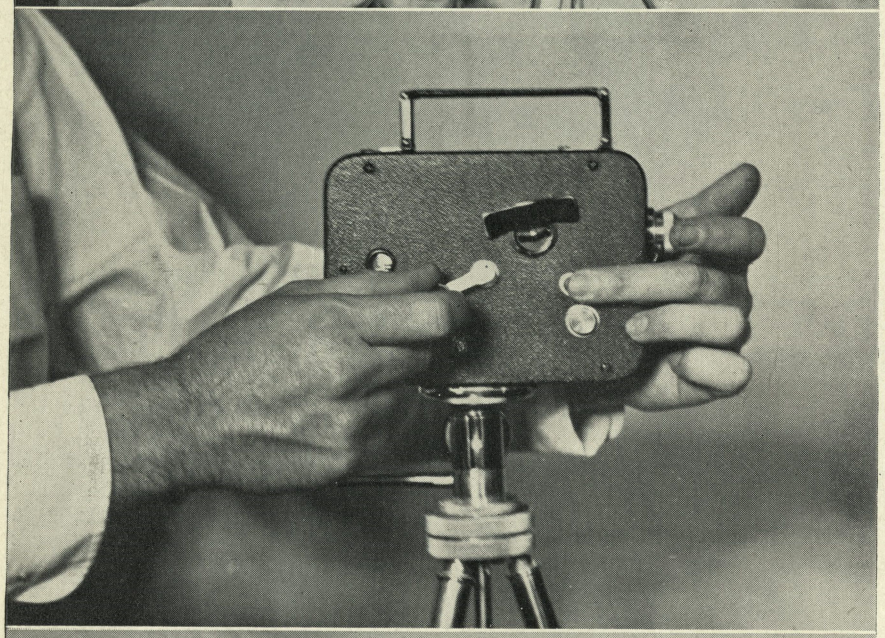
Then he mounted the film between glass plates and taped the edges for final protection. The homemade glass provides all the fadeins and fadeouts he needs for his 8mm. movies.

Rome Riebeth, editor of the Cine Clubber, monthly mouthpiece of the Minneapolis Cine Club, has made a satisfactory vignetter for his 8mm. camera by revamping the iris of a discarded still camera so that he could get circle-in and circle-out fades by simply opening or closing down the aperture mounted inside the lens collar.

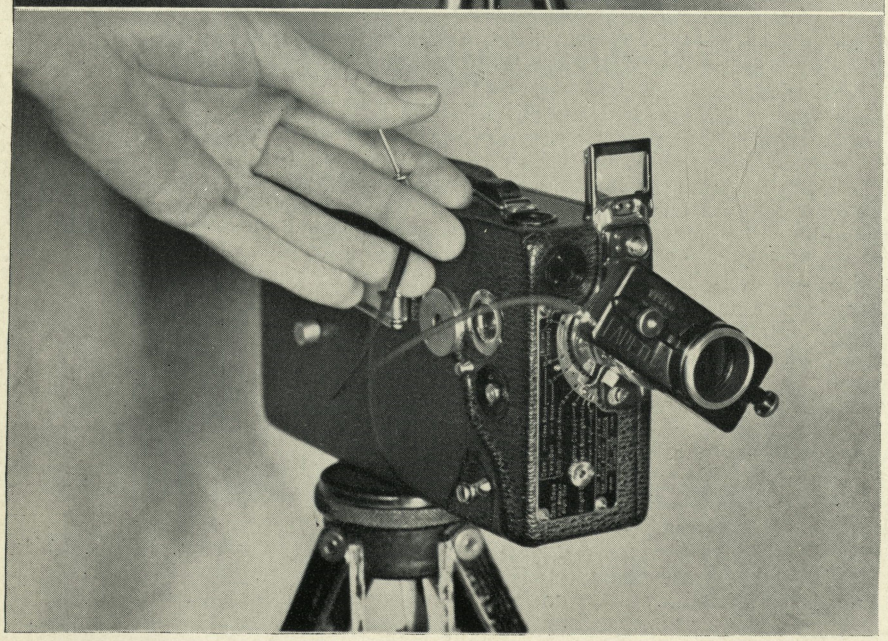
A comparatively new fading device now on the market is the Wesco Fadette,* which fits all 8mm. and 16mm. cameras, and produces not a circular but



L. L. Harmon, St. Paul watchmaker, inventor of a wind-back for Eastman 8mm. movie camera, is shown with a special cable release-self timer attachment he uses for taking self-movies.
—Harmon photo



The Harmon Windback is seen installed on an 8mm. Eastman camera. Note special crank. Second finger of left hand presses film release button.
—Harmon photo



The Wesco Fadette, only vignetter to give an oblong fade, is shown installed. Operated by a cable release, the device has only five moving parts. It is easily removed.

an oblong fade. In other words, the actual shape of the movie frame is retained as it diminishes throughout the entire fade.

Well constructed, of light bakelite, the device has only five moving parts, and it is manually operated by a cable release at any speed desired by the operator of the camera.

The Fadette sells for $5.95, and serves as a sunshade and filter holder as well as a vignetter. A set of three double masks is also available.

As Simple as That

Sometimes it is possible to manipulate "props" right out on location to give fading effects. For instance, you can fadein by shooting through a curtained window while someone out of camera range slowly raises the shade.

You can fadeout on a camping movie by setting up your camera on a tripod inside a darkened cabin, with the lens pointing at the doorway.

Slowly closing the door while shooting will result in a unique fade.

Another method which the writer has used in his fishing films for fadein is placing the angler with back against camera lens, and shooting as he walks away. For such a scene, the lens is usually set at universal focus. The dark-light screen effect in this case is startling as well as unique.

While the fade marks the beginning or end of a movie sequence, the lap-dissolve is employed to slow lapse of time, for spanning space, or changing from a long shot to a medium shot or closeup.

The dissolve is obtained by fading out on one scene, back-winding the film for the duration of the fade, and fading in on the new scene. This gives the impression of one scene fading out as another superimposed on top of it begins to grow brighter, finally replacing the former scene entirely.

The Works for 8mm.

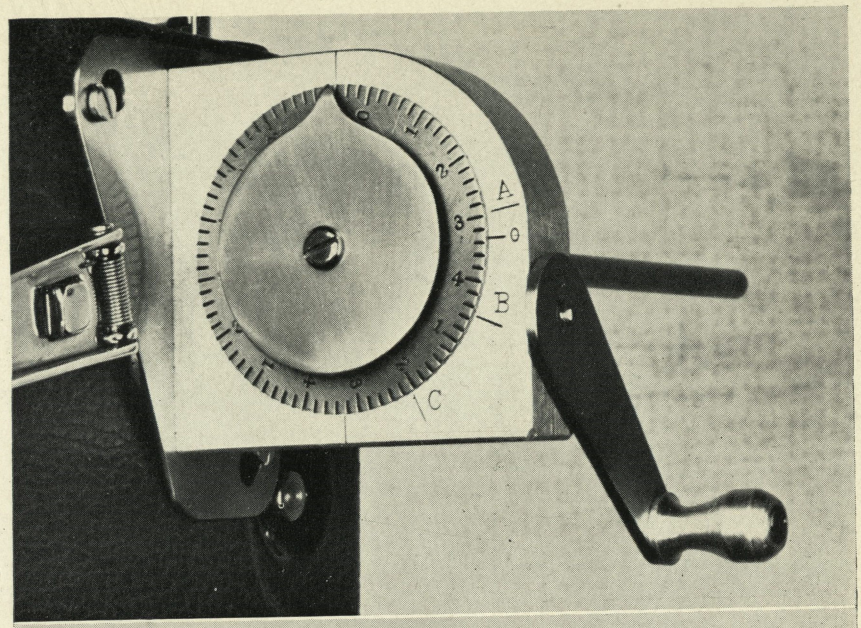
Only the costly cameras are equipped for backwinding film, and this unique effect would be impossible for those who own less expensive outfits if it were not for the practical-mindedness of several midwest inventors.

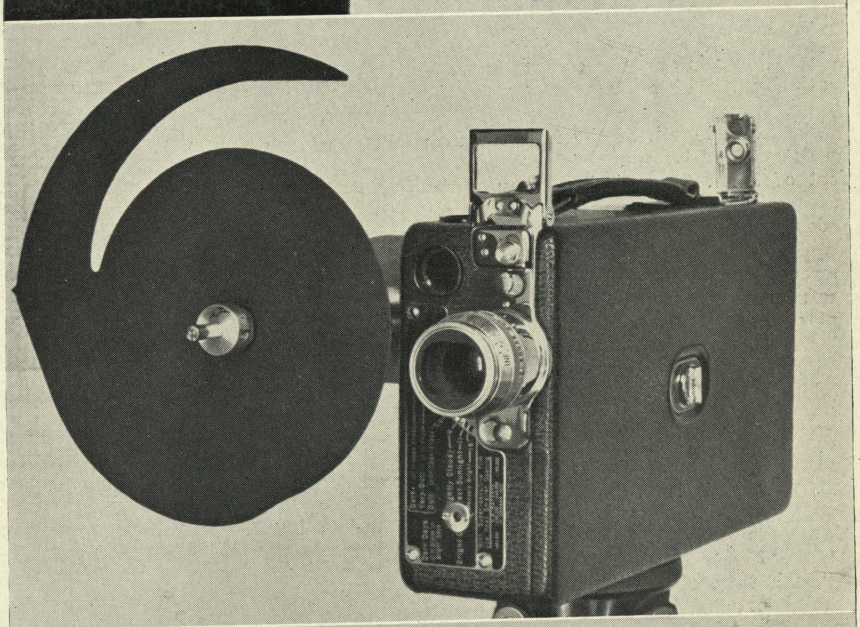
Ray Rieschl, professional sign writer,

Closeup shows calibrated dial of Cine-Transito. Pressure on center button while motor is running causes fade or wipe disc mounted on end of protruding shaft to revolve automatically and give desired effect.

Baia's Cine-Transito is pictured with wipeoff disc, made of dull black painted metal. Reversing position of disc on shaft gives wipe in opposite direction.

Circular fading disc revolves before lens from opaque to transparent area for fadein, or vice versa for fadeout. Cine-Transito is detachable, and does not interfere with camera mechanism.





8mm. Filmo enthusiast, and member of the Minneapolis Cine Club, has devised and patented a revolutionary yet inexpensive attachment for Bell & Howell 8mm. movie cameras, which permits fades, cut-aways, wipes, dissolves, ghosts, and other professional effects.

The "Wind-Bak,"† which is completely installed for less than $20, consists of a film release lever and a calibrated turning knob, which is mounted in the camera cover so as to engage indentions in the film spool when necessary.

Both lever and knob are built right into the camera itself without changing the design or interfering with motor mechanism. Normally, the wind-back knob is pulled out so that the spool runs free.

A demountable fading rod is fitted over the front lens barrel, the metal arm acting as a set screw to hold the ring to the barrel. The purpose of the rod is to simplify and smooth the work of turning the lens barrel to fadeout or fadein by reducing or increasing the size of the lens opening.

To dissolve, turn the fading rod until the scene fades out, first noting the footage reading at the start of the fade, then stop the camera. Push in the wind-back knob to engage the film spool, and pull out the film release lever.

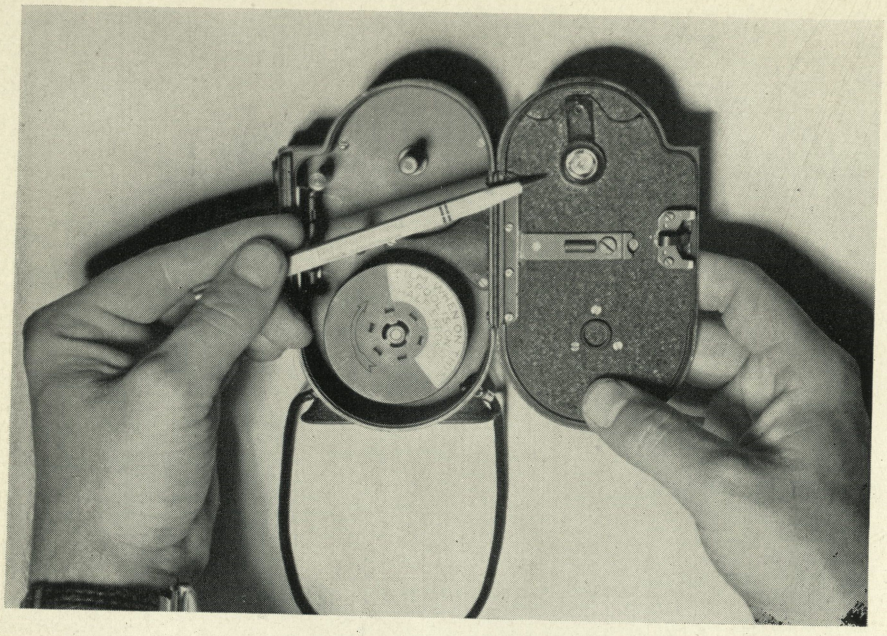
This is located just below the lens, and disengages the claw from the sprocket holes in the film while the film is passed backward through the gate.

To Dissolve

Since the amount of film on the reel controls the number of turns of the wind-back knob—varying from 2½ to 3½ turns per foot—a scale on the camera is consulted to insure absolute accuracy. The winding knob is also calibrated from A to Z to aid in resetting.

The knob is turned counter-clockwise and pulled out to disengage the spool. Then the film release lever in front is pushed in, and the fadein is produced by increasing the lens aperture to normal exposure by means of the handy fading rod. The position of the rod in the camera view finder indicates the proper lens setting.

Unlike other reversing mechanisms, this unique wind-back will rewind any amount of footage, from one frame to a whole roll of film. When the film



Inside of movie camera. Pencil points to clutch behind wind-back knob which engages film spool when pushed in. Film release lever on front of camera disengages claw from sprocket holes in film to permit backward movement of film. One frame or whole roll of film may be rewound at one time.

release lever is out, the camera is automatically locked as a warning to the operator.

The exact length of the fade can also be determined by counting seconds, one foot of 8mm. film passing through the camera in about five seconds. If longer fades are desired, more footage is allowed during fading, and proportionately more is wound back. The device is also useful for trick titling.

Working independently, L. L. Harmon, St. Paul watchmaker, 8mm. movie fan, and a member of the St. Paul Movie Making Club, has evolved the Harmon Windback‡ for Eastman Cine-Eights, Models 20, 25 and 60. Selling for $12 installed, the device has no parts which run with the camera during picture-taking. Consequently, there is no change of camera speed.

Maker of Comedy, Too

"Each turn of the specially installed crank is one frame," Mr. Harmon pointed out. "To wind back, simply push the film release forward, push in on the crank, and wind back. I use a fading glass for dissolves, making a three second fade, then winding back fifty frames and fading in. On my own camera, however, I have changed the aperture so that I can close it way down for a complete fade.

"I have installed a cable release for use with a self-timer, which saw plenty of use last summer on a camping trip I took with my six year old son. Since we had no one to take our pictures in the camp scenes, we would set up the camera, pointing at the field of action, set the timer, and walk into the picture ready for action when the camera started clicking.

This stunt worked out well. In fact, I took some night scenes of our camp and fire with lights, showing the two of us getting ready for bed.

After we turn in, I cut down on the lights and show a bear coming around the camp into the tent, and putting the run on us. I have also added music to my picture."

With his single frame release, Mr. Harmon found that it helped considerably to use the cable release, and with a little practice, he was able to bat them off almost perfectly.

Up at Detroit, Mich., the Baia Motion Picture Engineering Company has devised the "Cine-Transito,"** a dial-faced instrument geared and synchronized to the camera mechanism so as to produce professional-looking fades, dissolves and even wipes with revolving discs.

Quickly On and Off

Built of light weight duralium, the removable unit can be attached or demounted quickly. Inclosed in the dial housing is a geared coupling, and through one side of the housing extends a crank for back-winding.

The calibrated dial, housing and crank fit over lugs protruding from the side of the camera. A celluloid fading disc or wipeoff disc is mounted on the end of a shaft extending out from the center of the housing so as to pass before the lens barrel.

When making a fadein, the opaque area of the disc is mounted before the lens, and the camera motor is started. By pressing the button on the center of the frame counter, gears are engaged which permit the disc to revolve automatically until the transparent part of the dial is reached.

The fadeout is performed by starting with the transparent area before the lens, a distinct warning click informing the operator that the fade has ended and shooting should stop. Fading discs are available in 2, 3 or 4 second fades, and are quickly detachable.

To make a lap-dissolve, the usual procedure is to back-crank for the number of frames needed for the fadeout and fadein on the new scene. The wipeoff disc revolves in similar manner, wiping away one scene replaced with another, either from right to left, or vice versa.

The cost of the Cine-Transito installed ranges from $25 to $32.50, the windback costing around $25 extra, depending on the type of camera. Single frame release, having a 1/25 second exposure, may also be installed for animation work at $15 additional. The alterations and adaptations made by this firm are very exacting.

Now, with dissolves, fades and wipes, once available only to 35mm. producers, within easy reach of every button-pusher, need there be further alibis for amateur movies?

*Western Movie Supply Co., 254 Sutter St., San Francisco, Calif.

†Rieschl-Emerick Laboratories, Inc., 303 Loeb Arcade, Minneapolis, Minn.

‡L. L. Harmon, 310 Bremer Arcade, St. Paul, Minn.

**Baia Motion Picture Engineering Company, 8044 Hardyke, Detroit, Mich.

Pasadena Movie Club

Mr. Wilson showed pictures of China which covered many of the places of which members had heard through the newspapers. Test films which members had taken at the previous meeting were shown—and much enjoyed.

Any member having equipment for sale, trade or exchange now has the privilege of posting the same on the club bulletin board.

Outside of movie camera cover shows wind-back knob and calibrations to insure accuracy. Number of turns per foot depends on size of loaded film spool. Arbitrary A to Z letters aid in marking rewind position.

Remodeling A Picture Sets to Benefit B's

By JACK OTTERSON
Supervising Art Director Universal Studio
As Told to William Stull, A.S.C.

IT is often said that the economy and relatively greater financial success of the so-called B pictures makes it possible for many studios to produce their more pretentious A productions. The other side of the matter is too often overlooked: that intelligent re-use of such physical elements of the A production as sets is an important factor in making possible the economics of program film production.

Obviously if for a generous percentage of a B picture's sets you need not build new sets, but merely adapt existing ones, noteworthy savings can be effected. Even more advantageous is the fact that such a policy makes available to program pictures settings of a size and quality not otherwise possible on B picture budgets.

Since there is today an increased demand for economy in every phase of production, a brief discussion of some of the methods of adapting A picture sets for B picture use may at this time be constructive. Little enough has been said or written about the subject; yet there are few fields which can contribute more notably to our task of combining economy with production value for program releases.

Two Groups

From this viewpoint, A picture sets divide themselves naturally into two broad groups. In one are sets designed specifically to meet the needs of a certain picture, and of a nature such that one cannot expect them to be of immediate use to the average program film.

In the other are sets of a more common genre, which represent rooms or structures which fit more naturally into the needs of the average program-picture story pattern.

While this division may not necessarily influence the design and construction of an A picture set, it should wherever possible be considered in the erection of that set. Actually, the cost of a set includes not only the expense of designing and building it, but also the expense of erecting it.

Clearly, then, if for re-use in a program film a set, in addition to being remodeled, has to be moved from a scene-dock to a stage, and there erected, that set will prove more expensive to the production than if it were already standing on a stage and needed only remodeling.

Therefore we have found it well to consider this in planning our A picture sets. When a special-purpose set is to be built, we try to schedule it for one of the more frequently used stages, and when it has served its purpose, strike it quickly and store the component elements in the scene-dock.

At present we are completing two films using sets of this more specialized nature: "Green Hell" and "Tower of London." One of them calls for sets representing a tropical jungle, with the crude huts of a jungle outpost, native villages, and the like.

Some Razed

The other involves castle interiors and exteriors. Sooner or later some future program films will unquestionably call for such backgrounds; but that is in the indefinite future. Meantime, no constructive purpose would be served by keeping these specialized sets standing.

On the other hand, whenever a high-budget production, such as a Deanna Durbin production, involves the construction of large or luxurious sets, or of sets representing rooms likely to be frequently encountered in normal program films, we find it advantageous to erect the set on a stage where it can for some time be left standing without interfering with normal production.

Then when the time comes to re-use it, there will be no added expense for erecting the set; the only charge will be for the relatively minor physical changes that adapt it to re-use.

What type of sets are most valuable

Reversing the tone values in a set like this, re-dressing it, and using more prominent backgrounds behind the windows can alter it beyond recognition for re-use.

for re-use? Well, since so many program films are fundamentally of the action type, tending toward the time-honored "cops-and-robbers" story pattern, I would put courtrooms and cafes very high on the list.

Then would come hotel and apartment house corridors and rooms — to say nothing of lobbies — and a variety of living and bed rooms ranging from a milieu in which one might expect to find the "little tough guys" up to one of Deanna Durbin's luxurious cinematic residences.

In the typical action picture (if there is such a thing!) one may expect to find one or the other of the romantic leads living in relatively modest surroundings, with the other domiciled on the more plutocratic side of the tracks. The heavy may live in a swanky hotel or apartment, and will certainly be seen in a night club if such a sequence can be had economically.

There is likely to be some action in a business office, and more in police station and courtrooms. A surprising number of these can be adapted from the more normal sets of the average high-budget picture; the rest, if they are not already available, can be built without undue cost.

Two-Thirds Saved

I would estimate that with intelligent planning, at least two-thirds of the sets for an average B picture may be adapted from standing sets constructed for the studio's A productions.

The precise methods of modifying a set for re-use vary greatly, according to the demands of the action and the nature of the set itself. Disregarding momentarily the problems involved when the action indicates a specific floor plan differing from that of the set as it stands, let us consider some of the simpler methods by which a set can be economically adapted for re-use.

In some instances, simply re-dressing a set may be enough to change its aspect completely. In most cases, however, this can be taken for granted, and to it added changes in the visual treatment of the set itself.

Remodeling large sets, like this one from Deanna Durbin's "First Love," can give program production expansive settings at small cost.

Perhaps the most obvious, but always one of the most effective methods of changing the appearance of a set is the very simple trick of reversing its tonal values. If, for instance, the walls of the A picture set are light-toned, with a darker trim, a surprising change can be made by simply repainting the wall surfaces in a darker value and the trim in a lighter value.

This can sometimes be carried a step further by using three values instead of two—a light, a dark, and an intermediate value. The opposite is also true; where in its original aspect the set was treated with several tonal values, a surprising change can be wrought by suppressing one or more of them, and altering the remaining, basic value.

Wall Paper Important

Even more startling effects can be obtained by papering the walls. Where originally a wall might be treated merely as a flat, painted surface, the changed appearance given by using suitably figured wallpaper is incredible.

Often, however, the action of the second production may demand definite changes in floor plan. A door may be

needed to admit some dramatically important character at a point where in your original set there is only a solid wall.

In that case, it is only necessary to replace that particular unit of the set (by no means entirely the whole wall) with a unit containing the desired feature. The unused unit is stored for future use, while the rest of the set can be modified as requisite.

It is of course vital to be sure that the proportions, period, etc., of the replacement unit coordinate with the remainder of the set, so that there is no indication that the unit was added to a standing set.

In such an instance, clearly only one wall or less would have to be built, rather than three; and the remodeled set would still represent a saving of about one-third in comparison with a completely new set.

Big Changes in Sets

Where budgets permit, this is a very good way of making a complete change in a set for comparatively small cost. Until you have actually seen the result, it is hard to believe how greatly merely changing a door for a window, a blank wall for a fireplace, and so on, can alter a set, even without extensive changes in papering and painting.

In some instances, surprising changes in appearance can be made by changing merely the treatment of some such feature. In many of the sets used originally for the Deanna Durbin productions, for instance, windows may be somewhat subordinated, using only neutral backings behind them.

Using the same sets later, for another production, we may stress the windows more by the trick of using more prominent photographic or painted backings or miniatures behind them. Night-effect backings, with properly scaled flashing lights are excellent where the action permits.

Spectacular Stairway

There are some problems midway between these extremes; when a set may be virtually designed around some architectural feature which is very difficult to disguise. In the current Deanna Durbin film, "First Love," for instance, there is a set of an entrance hall of a mansion.

This set is featured by a spectacular broad, curving stairway which is an integral part of the design; suppress that stairway and you would have very little left. It would be almost impossible to replace it with anything.

That set is still in use, so the problem of re-using it is as yet well in the future, and anything that could be said about the matter must necessarily be one of surmise. But two methods suggest themselves. First, retaining the stairway, replace the wall behind it with one or more large windows, through which, perhaps, can be seen a suitably prominent backing.

Give Lighting Effects

Second, again replace the wall, but this time with modernistic translucent bricks. This again would tend to draw attention away from the stair itself, and make the background more prominent. It would also offer the cinematographer interesting opportunities in effect lighting, illuminating the translucent glass-brick wall from behind, thereby throwing his actors into a semi-silhouette or even a full silhouette.

The variations possible by combinations of these methods will be found to extend themselves almost indefinitely. It is even possible to so completely alter the appearance of a given set that it can, with successive modifications, be used to represent two or three apparently different rooms in a single picture.

This leads to the final problem: the time interval necessary to avoid the danger of having many audiences see the remodeled versions of an A picture's sets in a program release *before* they see the originals in the more pretentious production.

This is complicated by the fact that many program films have short production schedules, while the higher-bracket features may be allowed more time in editing, scoring, and so on, to say nothing of a later release date.

This can be minimized by taking adequate care that sets created for an important picture shall not be re-used until a reasonable period has elapsed. In general, when we have built—as we always do—a group of exceptionally pretentious sets for such a film as a Durbin production, we make it a rule never to allow even consideration of re-using them for a lesser film before eight weeks or more have elapsed from the completion of the A picture.

This is generally sufficient to avoid either the possibility that the B film be released earlier than the A or the still more embarrassing chance that the two might be seen together on a first-run double bill. In the second-run houses we must sometimes take a chance in the latter respect; but if both the art director and the cinematographer approach their work with proper artistry, there is really little chance that even if such a thing happened, the average audience would be aware of it.

For between the physical control possible to the set designer, and the photographic control possible to the cinematographer, properly coordinated, almost anything is possible, and the result can be increased B production economy with enhanced production value.

Hollywood Forum

The first program of the season was held in Bell & Howell auditorium Oct. 21. The new Forum president, Fred Orth, suggested that films taken by members be featured. The result was worth while:

"Harvests of the Forest," International Cinema League prize film, H. A. Burnford; "Old Chicago," J. Wilson, color; "Cocoanuts and Sunsets," Kay Holzaple and Louise Butter; "Utah," Dr. Helen R. Clifford, color; "National Parks," I. Neal Rogers, color; "Skippy the Cocoanut," Mark C. Hunnewell of Miami Beach.

This stairway dominates its set; but for re-use the wall unit behind the stair might be made different by use of large windows, or translucent glass-brick treatment, effectively altering the appearance of the whole set.

BERNDT OPENS PLANT IN WEST FOR B-M EQUIPMENT

TO meet the growing demand for high quality 16mm. sound-on-film equipment on the Pacific coast, Eric M. Berndt has established a Hollywood sales and service agency for Berndt-Maurer equipment. Also available is an engineering and consulting service covering all phases of 16mm. sound and picture work.

The Hollywood agency will handle B-M 35mm. variable area recording galvanometers as well as the complete line of B-M 16mm. sound-on-film recording machines, high fidelity amplifiers, film phonographs, and camera motor drives. Complete facilities have been established for special work on film sound machines and recording galvanometer installations.

The newly formed E. M. Berndt Corporation is situated at 5515 Sunset Boulevard, near Western Avenue. Associated with Mr. Berndt as officers of the corporation are G. A. Busch and Walter Bach, both formerly with Berndt-Maurer in New York City. Mr. Berndt has assumed active management of the Hollywood agency while maintaining his interests, as before, in the Berndt-Maurer Corporation of New York.

A complete B-M 16mm. double system sound-on-film recording channel and a B-M 16mm. film phonograph rerecording channel are on display at the Hollywood office. A small demonstration theater is available for 16mm. sound-track playback and picture demonstration.

NEW BOOKS

The Year's Photography. 1939 - 1940. Royal Photographic Society Publication. 2s. 6d. Advertising, 47 pp.; text, 19 pp.; plates, 44 pp.

The text of The Year's Photography is contributed by J. Dudley Johnston, Hon. F.R.P.S., "The Pictorial Side of Photography"; "The Lantern Slides," by R. H. Lawton, Hon. F.R.P.S.; "The Naturalist and the Camera," by John E. Saunders, F.Z.S. (Assistant Editor Photographic Journal), and "The Un-Birthday Present," by E. W. H. Selwyn, A.R.C.S., B.Sc., F. Inst. P.

Let's Go to the Movies. By William Clayton Pryor and Helen Sloman Pryor. Harcourt, Brace & Co. New York. 183 pp. Illustrations, 48 pp. $2.50.

In this book of thirteen chapters its authors have been thinking of high school teachers and principals and the writing of a text book. It is dedicated "to high school teachers and principals who have asked for a book like this."

With that end in view thirteen chapters have been written. They are entitled Let's Go to the Movies, Newsreel, Feature, Story, Direction, Players, "Roll 'Em," Costumes and Make-Up, Sets and Props, Editing, Selected Short Subjects, Cartoons and We've Been to the Movies. The book fits in with a series of fourteen other books, of which the first two are The Train Book and The Fire Engine book. The story of the movies and the screen is not like the train book and the fire engine book.

The authors have visited Hollywood and have seen the inside of studios and the men and women at work on the inside of the fence. Apparently they have been shown much that goes on behind the lines and have got some of that down on paper. As said in the beginning, 48 illustrations are shown bearing on picturemaking. The pictures are authentic.

La Casa Moviemakers

A large group of movie fans attended the October meeting of La Casa Movie Makers of Alhambra, Cal. Some fine work was shown.

Mr. Ingham has made a hobby of trains, and has filmed all types from the old wood burners to the latest stream line de luxe.

Mr. and Mrs. Moore made a fine color film on a recent trip through the Canadian Rockies.

Mr. and Mrs. Gardner vacationed in the New England states and have a good continuity of their experiences. They are new at the game, but get results like old timers.

November will close the fall uncut film contest and some interesting results are expected.

R. A. BATTLES, Publicity Chairman.

Approximately two-thirds of the motion picture films exhibited in Argentina during the first nine months of this year were of United States origin, according to the Department of Commerce. Of a total of 347 films exhibited during the nine months, 232 were American-made.

E. M. Berndt Corporation's new plant for Berndt-Maurer Sound Equipment, 5515 Sunset.

DEVISE SUNFLECTOR AS CINEMATOGRAPHER HELP

IN 1934 Elmer Dyer, A.S.C., and Charles Marshall, A.S.C., went to Randolph Field, Texas, to shoot "West Point of the Air" for M-G-M.

A Randolph Field officer, Lieut. Don Norwood, was detailed as liason officer to coordinate operations between the military and the motion picture organization.

A large portion of the picture taking included aerial work, but there were also numerous ground scenes. Lieut. Norwood observed with much interest the extensive use made of large reflectors to supply auxiliary illumination for the ground scenes.

As a matter of fact a whole truckload of these reflectors were usually carted around. The splendid effects achieved by their use was duly noted.

Since Lieut. Norwood had more than a passing interest in photographic practice he pondered the problem of more extensive use of reflectors by amateur photographers. If the professionals could achieve such excellent results with the use of reflectors why should amateurs not make more use of the same device?

Small and High Efficiency

The cumbersome size of the ordinary reflector seemed to present a major obstacle. Study of the matter revealed the fact that the ordinary reflector is a huge, low-efficiency device. What was a small high efficiency device that would effectively do the same job.

Working on this premise he finally evolved just such a unit. This unit had high reflective power and kept the beam of illumination compact so that very little reflected light was wasted.

The device radiated a divergent cone of illumination which was very intense near the unit where the circle of illumination is relatively small, and tapered off gradually at greater distance where the circle of illumination became progressively larger in size.

Thus the operator was offered the choice of selecting the intensity of secondary illumination desired, by just placing the device at the appropriate distance from the subject.

Has Device Patented

The accompanying illustration shows the unit in action. It is interesting to note in this scene the heavy shadow on the left of the photographer. The corresponding shadow on the subject has been brought up to a nice level of transparency by illumination from the reflector device, which may be noted in the left center foreground.

The device worked out so well in practice, and was the subject of such favorable comment from all photographers who saw it in action, that Lieut. Norwood proceeded to procure patent protection for it. It was named the Sunflector.

Then a big manufacturer of photographic specialties saw the potentialities of the device and decided to produce it in quantities so as to offer to photographers generally the advantages to be obtained from its use. This manufacturer, James H. Smith & Sons, Victor Products, Griffith, Ind., after a year and a half of preliminary work now has the device ready for the market at a reasonable price. The reflector measures 10 inches over all in diameter and weighs 25 ounces.

The possession of such a unit enables a photographer to secure balanced illumination on his subjects. He may then undertake to make those cross-lighted and back-lighted shots which are so attractive.

It is believed that these units will enable amateur photographers in some measure to emulate some of the splendid scene lighting effects achieved by the professional A.S.C. men, and in so doing to raise the general level of their work.

After all, proper lighting is one of the hall marks of good photography. These units will also probably be found to be of considerable value to newsreel photographers and others who appreciate the value of reflectors but also demand maximum portability of equipment.

Sunflector in use against heavy shade.

Walker Wins Another

FOR the second time in five months Joseph Walker, A.S.C., romped away with the photographic honors in the Reporter's poll for October. This time it was Capra's "Mr. Smith Goes to Washington." The preceding time it was Hawks' "Only Angels Have Wings," Columbia producing each.

For Walker it was two in a row, he having stepped from "Only Angels Have Wings" on to the "Mr. Smith" stage. And that, it may be said, is not being done—except on one occasion. That was when Bert Glennon followed Wanger's "Stagecoach" in February last with Twentieth Century-Fox's "Young Mr. Lincoln" in June, making two in a row for him in the first instance.

In the October voting there were only four places that missed going to "Mr. Smith." They were best actress performance, Greta Garbo, in "Ninotchka"; best supporting actress performance, Ina Claire, in "Ninotchka"; best original song, "Eternally Yours"; best general feature, "20,000 Men a Year," Twentieth Century-Fox.

All the other bouquets went to "Mr. Smith." They were to the best picture, to the best director, Frank Capra; to the best actor, James Stewart; to the best screenplay, Sidney Buchman; to the best supporting actor, Claude Rains; to the best incident performance, Harry Carey; to the best musical score, Dimitri Tiomkin.

CONTINUITY PRIME FACTOR OF STORY TELLING

By CLAUDE W. CADARETTE

Founder Los Angeles 8mm. Club

CONTINUITY is an uninterrupted succession of a series of ideas, facts, actions or events, which, when placed in their proper sequence, form a complete cycle or establishment of fact.

It is the prime factor in motion picture photography to convey to the audience the purpose of the picture in a clear, concise narrative. It places each incident in a relative position so that it leads to its ultimate goal the thought to be expressed.

Its place in motion pictures is as important as its use in writing a book, making a speech, or telling a story so that the individuals comprehend the entire narrative without an interruption of thought. The picture is started, and by a step-by-step process carries the viewer to the climax and final fadeout without giving his mind an opportunity to wander from the original theme of the picture.

Continuity in travelogue carries the audience from one location to another and should be so well executed that they are anxious to see the trip unfold before their eyes. Without an appropriate, smooth continuity the film would fall in the class of the old postcard album or stereopticon slides.

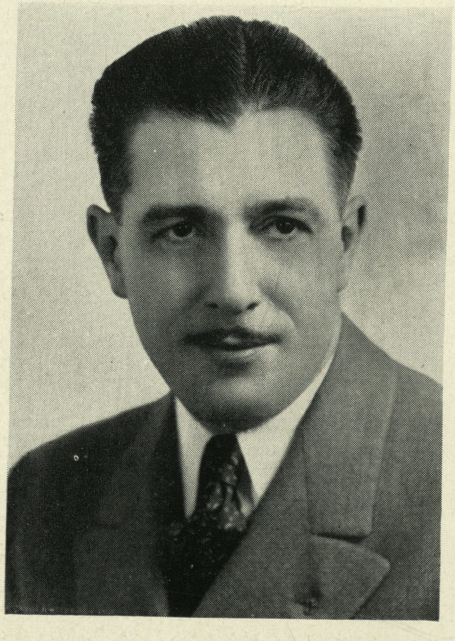
Movement—Visual, Narrative

Any picture should contain visual movement for the eye and narrative movement for the mind. The picture should start with a main title and possibly be followed with an explanatory subtitle for explanation of the purpose of the trip or scenario, the proper combinations of scenes for each sequence, the proper placement of each sequence, and then the final close-out scene or fadeout.

Assuming your trip is planned to include several cities or national parks, combine all scenes of each city or park to become a complete sequence of that particular location. Each of these sequences covers one phase of your trip and becomes a complete unit of its location.

A sequence of Zion Park should entirely cover that park and no other scenes of Zion should appear in other parts of the reel of film.

Although it is possible to have a main title for each sequence or location, it is better to insert a few scenes between sequences to carry your audience from one location to another. Shots of the car rolling along the highway, or a line drawn along a map are common shots used between sequences.



Claude W. Cadarette

Watch Your Fades

Each sequence should start with a fade-in and end with a fadeout. Follow this with a quick fade-in of your action shot and fadeout. These interspersed shots can become running "gags" if you like a little humor in the picture.

The use of date sheets dropping from calendar, poetic passages or any of the innumerable ideas denoting a passage of time or space add to the attraction of your travelogue. Never allow your picture to become a monotonous series of scenes alone. Cut in running gags of you pumping a tire, or the famous Burma Shave signs to add a little zest.

In shooting your scenes choose the best set-up for your camera, keeping in mind that composition is also an important aid to continuity.

A common fault in travelogue pictures is the unending panoraming shots which do not allow the eyes to remain fixed on the subject of interest.

Upon the completion of your trip, take your audience back home. A few action shots is sufficient to give your audience the sensation that they had accompanied you on it. Never leave them in some park or city but add a few shots of the return home and unpacking the luggage and your picture can end with a long fadeout.

Must Be Smooth

Continuity in scenarios must be very smooth so that the viewers do not have to question the purpose of each scene or action. Each sequence must be so closely related that their omission from the reel would render the scenario incomplete and disconnected.

Open the picture with a main title and sub-titles to introduce your characters and location of the story. The use of sub-titles in scenarios should be kept at a minimum, as they usually retard the action of the story. If your story is well planned and the narrative strong, sub-titles can be eliminated and the picture will tell the story.

Your lettering in the titles should conform to the mood of the picture. For dramatic pictures lettering in bold type is suitable while Old English lettering is more appropriate for pictures at Christmas or anniversaries of elderly couples.

In writing your scenarios the same procedure should be used that you would employ in preparing a speech.

First, write the story in a brief synopsis listing all important phases which lead to the climax. Then list the scenes as they will appear on the screen, for example:

Long shot—Scene 1—Opening shot of farm.

Medium shot—Scene 2—Close shots of cattle, chickens, hogs, etc.

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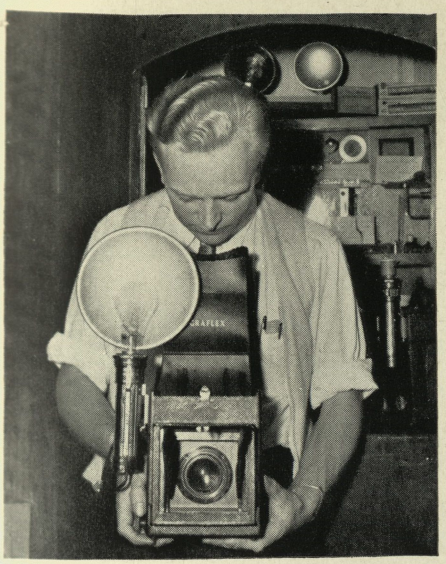

William (Bill) Salmi, designer of the new HCE focal plane flash synchronizer for use on the Graflex and Speed Graphic.

Hollywood Man Installing Focal Plane Synchronizer

William (Bill) Salmi of the Hollywood Camera Exchange's technical and research department, 1600 Cahuenga boulevard, has designed the HCE focal plane flash synchronizer for Graflex and Speed Graphic cameras. A lens shutter is not required. With the use of the device a uniform exposure with no hot spots or fadeouts is secured. Flashes up to 1/1000 of a second are obtainable with this synchronizer.

A money-saving feature is the safety device incorporated in the synchronizer which eliminates the possibility of flashing bulbs while winding the focal-plane shutter curtain.

The design is of the simplest character, the only visible parts being the battery case, cord and reflector. The heart of the synchronizing unit is constructed within the camera, so as to keep it within adjustment, with perfect synchronization at all times. The feature adapted to the Graflex and Speed Graphic broadens their range in the field of sports and action events.

The price of the extra equipment installed is $25.

Germans Digging In

The office of the commercial attache at Berlin, Germany, reports that a representative of the German motion picture industry and the director of the Association of Slovakian Motion Picture Theater Owners met to discuss details of a close cooperation between the two groups.

The question of German film imports was carefully examined. It is reported that the Slovakian motion picture industry will be completely reorganized, both technically and financially as well as culturally. The first step, it is said, will be to prohibit the exhibition of films of the wild-west and gangster type.

Use of Fine Grain Positive Emulsion

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equal to that obtained from ordinary stock using electrical noise reduction.

The most complete advantage in using fine grain stock is obtained only where the film laboratory has compounded a developer especially designed for the characteristics of this stock. Under these conditions an H and D characteristic of the negative at a gamma of .35 is shown on Fig. II.

It will be noticed that the toe to shoulder latitude widens and the overall printed through sensitometer strip shows no deviation over the range of densities needed. (Fig. III.)

An increase in apparent modulation of the film is obtained such that the theatre uses less amplification for the required loudness. This is due both to increased frequency response and also to the actual transmission of the film being greater than the indicated transmission by the visual densitometer.

Because of this increased transmission, the amplification in the theatre for fine grain variable density need be no greater than for variable area, with the added flexibility inherently available in variable density systems for changing levels by changes in print densities.

Fig. 4 shows photo micrographs taken by K. B. Lambert, which shows the grain size and clumping of the various combinations tested. It will be noticed in the bottom of the figure that when a square wave having a fundamental of 7000 cycles is recorded, the increased fidelity in the negative is apparent in maintaining a more proper density gradient.

* See F. E. Ross, "Physics of the Developed Photo Image," page 138 (1924).

Action Stills with Focal-plane Flash

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set lighting was used: but in every instance it is noticeable that even with this brief exposure, the single No. 31 flash-bulb provided the principal illumination, effectively penetrating all other lighting.

As will be seen from the illustrations, the movement—even in such fast-moving extremities as hands and feet—was "stopped cold." Further, the small stop used permitted extreme depth of field, which could not have been obtained in any other way.

When compared to previous methods, the value of focal-plane synchronization can be easily perceived. We can now make these shots actually on the set, instead of against an uninteresting, white background outdoors.

We can use any shutter-speed necessary to "stop" the action, up to and including our cameras' maximum of 1/1000th second. Actual tests have shown excellent synchronization at 1/1000th second, with ample exposure values.

This, incidentally, points the way to further possibilities: the use of focal-plane synchronized flash exposures in place of reflectors for normal, exterior high-speed action stills.

Finally, in our immediate problem of making action stills of dance routines, there is the obvious advantage of eliminating the use of reflectors which, as has been said, almost invariably force the player to squint or even to blink in the dazzling glare of reflected light.

The photoflash, even though it is infinitely more intense than any possible reflected sunlight, is of such brief duration that it is over before the player is conscious of it. Accordingly, the synchro-flash picture is made before the player has time to blink. This is a definite advantage.

In conclusion it may be said that this new focal-plane synchronizer bids fair to advance the scope of studio still work to a measure second only to the familiar advances already made possible by lens-shutter synchronization.

Further experimentation and actual use on production will of course be necessary to determine fully what can and can not be done with this new tool. But it is certain that in it the studio stillman has gained something that will simplify some of his most perplexing problems.

Camera Rest for Filmo 141 Designed by Bell & Howell

Bell & Howell announces a new sheath case of patented design which differs radically from the ordinary type of cut-out case used on a candid camera.

In this new case for the Filmo 141 16mm. camera, the camera is screwed to a tongue which is permanently attached to the case. When the camera is placed in use the body of the case forms a camera rest against the chest for greater steadiness in movie making.

All the camera controls remain visible throughout use with this new candid "ready rest" case. Also, loading of the magazine is accomplished with utmost simplicity, and without having to detach any part of the case from the camera. The price is $6.

Goerz Optical Company Not Affected by War Situation

So far as the supply of high-grade photographic lenses is concerned, the European situation does not disturb the sales program of the C. P. Goerz American Optical Company, 317 East Thirty-fourth street, New York, at the present time.

The company states that its New York factory is ready as ever to supply the American retailers with a full line of its American product as it has done for over four decades.

Since 1899 it has been building fine anastigmat lenses for the various branches in photography, including photo-engraving and movie camera lenses as well as accessories.

Sensing the possibility of interruption or delay in imports of certain types of optical glass necessary for the production of its celebrated lenses, it has at this time sufficient stock on hand to take care of all normal demands of the trade for a considerable period.

The new candid "Ready Rest" carrying case for Bell & Howell Filmo 141 movie camera.

Americans

Belief in the American home—Intensely defending the home front—living up to tradition and expressing their charity through the Community Chest—eliminating the sore spots of and relieving unfortunate families and caring for children in the community—"kindly affectioned one to another." That is why the "great heart of America" is America's great strength.

Eighteen thousand volunteers, who are also donors, ask all citizens, beginning November 8, to give of their substance that they may help other citizens not so fortunate through the Community Chest's 88 member-agencies.

Washington Amateurs

The November meeting of the Washington Society of Amateur Cinematographers was held in the lecture room of the Mount Pleasant Library at Sixteenth and Lamont Streets, N.W., on the 6th.

It was opened by an informal discussion of questions pertinent to movie-making.

Mr. Whetsel of the Ritz Camera Center demonstrated a Bell & Howell sound projector. Also he screened "In the Wake of the Buccaneers," a sound picture of the Virgin Islands.

ST. PAUL CLUB HAS GALA EVENT IN STATE CAPITOL

ON November 6 in the Chamber of the House of Representatives of the Minnesota State Capitol the St. Paul Amateur Movie Makers' Club presented "Barbara Steps Out," an outstanding record of the history and activity of the School Police. The club had made the film for the Department of Public Safety of St. Paul.

After the premiere showing of the film it was handed to the Governor, Harold E. Stassen, an honorary member of the St. Paul School Police, who in turn delivered the film to officials of the city.

The program of the evening's entertainment included acknowledgements of introductory remarks by E. E. Bauman, chairman of the scenario committee; presentation of film by Secretary Ford Marshall of the club; acceptance of the club by the Governor, Mayor William H. Fallon and Gus H. Barfuss, commissioner of public safety; introduction of color travelogue of the Black Hills, Homer B. Thomas. The picture had been made by the technical advisor of the club, Hans Reuter, for the Northwestern Railroad.

Two years ago the St. Paul Amateur Movie Makers' Club produced a teaching film for the St. Paul Police Department, "Spare the Evidence," which has been widely used in training new recruits in the department. The success of this venture prompted Clinton A. Hackert, Chief of Police, to encourage the club in another production venture for the department.

The need for a documentary film record of the St. Paul School Police which would enlighten public opinion about the history and activity of their youthful traffic helpers had become evident. The colorful events which mark the annual activities of the 2500 boys and girls demanded that the new film be produced in natural color—a venture which called for the solution of numerous technical problems, among them the brilliant lighting of the entire Auditorium in the Public Safety Building so that the annual election of the School Police Chiefs could be recorded in color.

Lighting experts from the Northern States Power Company were called in, and five cameramen assigned to cover the event.

A further problem was the careful selection of color film made under changing outdoor lighting conditions, due to frequent changes in sunlight from passing clouds, so that the annual picnic and parade shown in the finished film would contain fairly uniform exposures.

While equipment valued at thousands of dollars was used to make portions of the film, much of the work was done with ordinary, inexpensive equipment, and in some instances, home-made, crude devices were assembled to accomplish editing and titling of the film.

It is perhaps this factor which has brought to the screen the spontaneity of enthusiastic boys and girls, alert to their opportunity as confident guardians of the school population, in a motion picture drama of real life in St. Paul.

At times the cameramen were swamped with children who wanted their own pictures included, but nevertheless, the club members who helped to film this documentary picture will not soon forget the tremendous cooperation and service which are outstanding qualities apparent in the school police boys and girls.

Art Reeves Designs Inter-Changeable Developer

(Continued from Page 541)

place by ordinary, wooden spring-clip clothes pins. Since the drive is through the bottom rollers only, the film in the section thus disconnected does not move.

When it is desired to change from negative to positive development, or vice versa, the strand in the unused section is merely connected into the line by means of staples or Mercer clips, while that in the other section is disconnected. Developing-time changes are made by a simple adjustment of the variable speed control.

With the new compensating take-up, it is therefore possible to interchange without delay from 35mm. negative to 16mm. positive, from 16mm. negative to 35mm. positive, or any other necessary combination.

Philadelphia Cinema Club

The diversified features of the November meeting of the Philadelphia Cinema Club gave the members an opportunity to compare the "old" with the "new" in more ways than one.

The silent film, "Entitled to Success," an 800-foot 16mm. black and white production of Charles J. Carbonaro, demonstrated clearly how details can bring out the story in an amateur production. As a direct opposite and to prove that he could "take it," our own R. M. Hoot submitted a 400-foot reel of his first movie efforts—a 16mm. black and white. Mr. Hoot's first efforts, while naturally not in the class of "Entitled to Success," clearly showed that he understood the art of making movies when he first had the movie camera in his hands. Mr. Hoot's current efforts are in very great demand.

Through R. W. Henderson, of our own club, we were permitted to see and hear an amateur production of Kodachrome sound on film taken by himself with the cooperation of Mrs. Henderson at the Worlds Fair. It is evident that outside conditions, which moviemakers are not able to correct, interfere to a great extent with getting proper sound rendition accompanying the moving picture itself. This is especially true of background noises, resounding noises and the like. The reverberation caused by the construction of the Aquacade distorted the band music in such a manner that the microphone was unable to properly separate the true music from the background.

Mr. Henderson's photography was excellent, and we hope to see more of his work in the future.

Somewhat of a novelty is in store for the members and their family at the December meeting, which will be a Christmas party for the members and their children. There will be presents for the kiddies, delivered by Santa Claus. Movies will be taken of the meeting, which will be devoted entirely to entertainment of a type intended to attract and hold the attention of the children.

B. N. LEVENE,
Chairman of Publications Committee.

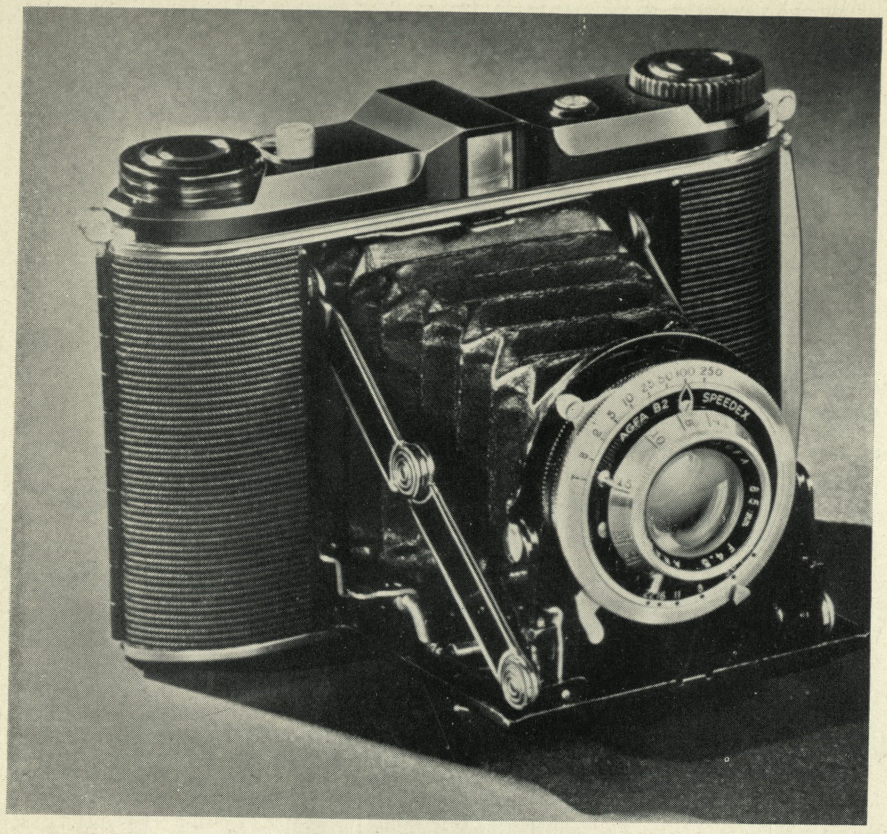
Hugo Meyer Announces New Synchronized Range Finder

Hugo Meyer, maker of precision photographic lenses and photo-optical instruments, announces a synchronized range-finder for plate and filmpack cameras. While formulated on exact trigonometrical calculations, the manipulation of this instrument is extremely simple. As one glances through its eyepiece, one observes two squares, one within the other.

The view seen in the larger square remains fixed. Superimposed on this field is a second image shown in the smaller square. As the focusing knob is actuated, the smaller field moves laterally across the main field. When the two images coincide, the camera is in exact focus. The image is bright, brilliant, contrasty and extremely visible. It can be observed quickly and with unusual ease. The square field of the Meyer Range Finder reacts most advantageously to the observer as it yields a larger, more readily visible image.

It provides, therefore, an easier, more certain method of focusing than the customary round field. In precision, in its close adherence definitely to modern optical and mathematical calculations, the Meyer Range Finder is the ultimate word in instruments of this kind. An important feature is the mathematically calculated principle which coordinates the optical system of the range-finder and camera lens.

This renders the camera a truly autofocal, automatic instrument that will unfailingly capture its subject in exact focus—at every distance. It should also be stressed that the highly accurate calculations of the coupling curve eliminate errors often found in synchronized range finders at intermediate distances. For further information on this instrument, communicate with Hugo Meyer & Co. which manufactures this accessory in its New York workshops at 39 West Sixtieth Street.



Agfa's Speedex, f.4.5 anastigmat lens of 85mm. focal length, with 2¼ by 2¼ print.

Agfa's New Speedex Makes Strong Bid for Popularity

Photographic dealers are currently showing Agfa Ansco's latest contribution in the field of fine hand cameras, the new Agfa Speedex. Precision-built and 100 per cent American-made, the new Speedex is a compact and capable instrument with features in design, construction and workmanship that make it a remarkable value at its low price of $27.50.

The Speedex is fitted with an f.4.5 Anastigmat lens of 85mm. focal length and a precision shutter with speeds of ½ to 1/250 second, as well as time and bulb exposures. Measuring only 5¾ by 3⅝ by 1½ inches in size (closed), the Speedex takes twelve 2¼ by 2¼-inch pictures per roll of inexpensive B2 size film.

Focusing from 3½ feet to infinity is provided by the adjustment of a focusing ring on the lens mount. The shutter, which is of the pre-set type, is released by a button mounted in a convenient position on the body of the camera.

The Speedex is unusually attractive in appearance, its trim, compact lines being emphasized by a rich black, wear-resistant covering and a restrained use of polished chromium metal. Added beauty is provided by the smooth, molded top which contains the eye-level view finder, built-in shutter release, opening release button and winding knobs.

An additional feature of the Speedex camera is the new-type, self-erecting platform and front which incorporates a precision movement that brings the lens and shutter assembly quickly into a rigid, picture-taking position.

A recessed tripod socket centrally located on the base of the camera, a single film window "peephole" positioned in the center of the camera back, built-in eyelets and a separate neckcord are all standard equipment. A special ever-ready leather carrying case, listing at $4.75, is available.

Reflector Kit Issued by Agfa for Afterdark Work

Amateur photographers planning to make snapshots at night indoors with photographic flash or flood lamps will be interested in the new, inexpensive Agfa reflector kit now available at photographic dealers. The two folding reflectors included in the kit are made of a heavy, durable card stock having especially good color and reflection characteristics for photographic use.

Printed on the side panels of each reflector are full directions for use, including exposure recommendations and suggested lighting arrangements.

The new Agfa reflector kit also includes two metal adapter rings for fitting reflectors to standard home lighting fixtures, a handy ten-foot folding rule that eliminates the need for guessing distances, and a convenient exposure calculator.

The exposure calculator is of the "slide-rule" type and quickly indicates suggested lens and shutter settings for cameras loaded with Superpan Press or Superpan Supreme films, and for a wide range of lighting conditions.

The European war is likely to result in making New Zealand virtually dependent on the United States for its motion picture films, according to Nathan D. Golden of the Department of Commerce.

Eastman Projection 70 has Made New 8mm. Standard

SMARTLY designed, sturdily built, easier to operate, a new Kodascope Eight, Model 70, is announced from Rochester by the Eastman Kodak Company. This Kodascope Eight, it is stated, is "designed to set a new standard for 8mm. projectors." Among its outstanding features are:

Die-cast construction, attractively finished in gun-metal gray, with chromium finished parts.

One-inch f.1.6 Eastman-made projection lens, which with 500-watt lamp makes it possible to show pictures up to 39x52 inches on beaded or aluminum surfaced screens.

Newly designed film gate, held open by catch during threading.

Convenient threading knob.

Positive three-position switch, controlling lamp, motor and cooling fan.

Positive framing by knurled screw atop projector. Outline of picture on screen is not moved during framing.

Rapid rewind, set in action by pull of a rewind lever. Automatic release of takeup drive during the operation. Rewinding done with lamp off.

Speed adjustment knob, which affords absolute control of the projector's motor speed.

Easy tilting, over an unusually wide angle, by an easily grasped adjustment knob on the projector base.

Highly efficient cooling system, including special cooling flanges, double-wall lamphouse, and powerful motor-driven fan.

Removable lamphousing, gives ready access to lamp, reflector, and condenser lenses.

Accommodation for 300, 400 or 500 watt lamp, and lamp adjustment screw for obtaining maximum illumination.

Convenient carrying handle, so located that the projector is properly balanced when lifted.

Main bearings pre-lubricated.

Sturdy, roomy carrying case, with space for projector, extra reel or two, extension cord, and an emergency splicing outfit.

Goerz American Company Compiles List of Products

In the interim while a more comprehensive illustrated catalogue of the various types of Goerz photographic lenses is being compiled, the manufacturers present a concise listing of the company products. In the event the information is not sufficient for the reader to make a selection he is invited to take up his particular problem personally.

The company suggests that having manufactured and sold Goerz lenses in the United States for more than forty years it may make the modest claim of having acquired some measure of experience which may be of help to the professional and amateur photographer, both cine and still.

Real Achievement

ON the evening of November 27 at Carthay Circle Theatre, Los Angeles, Paramount previewed "The Great Victor Herbert." A couple of weeks before it had done the same to "Geronimo." Both pictures had been through the new process of fine grain positive on which several of the studios have been working but on which Paramount has been one of the leaders.

"Geronimo" was the result of many shots, present and past, covering several years, with varying brands of negative. Excellent as were the results, these were submerged photographically and in sound by the Victor Herbert subject, photographed within recent weeks on the latest negative—and reproduced by Paramount on fine grain positive.

In its photography under the hand of Victor Milner, A.S.C., and its sound by Hugo Grensbach and John Cope it touched the heights. The photography will be recognized by the millions, clear to the vision and the consequent knowledge; the sound consciously and sub-consciously by one or another.

To the Paramount as an organization the picture is a real achievement. To Loren Rider and Dr. Charles R. Daily of the sound department, Ray Wilkinson of the laboratory and Roy Hunter of the camera department, together with all of their associates, the picture will mean much—proof that while Wall Street is worrying about the financial and other phases of industrial existence the substantial, the enduring, side of the motion picture is being well taken care of.

Those who heed photography will pay tribute to Vic Milner for his artistry as they will to the technical skill of the sound men.

There are many pictures where the man out front gets an occasional rumble that rises above the illusion created by the story. In "The Great Victor Herbert" the occasional becomes the regular; the lighting, the exposure and the sound are so striking, so unusual, they surmount the illusion.

GEVAERT COMPANY WILL MANUFACTURE FILM HERE

THE Gevaert Company of America, Inc., a New York corporation, has acquired a factory of considerable size for the manufacture of the well known Gevaert photographic products in this country. The factory is situated in Williamstown, Mass., and its site is of sufficiently large area to permit of future expansion.

The company expects that in a few months it will be able to supply American made films and other sensitized materials. At present it operates as distributors for Gevaert Photo-Producten, N. V. of Belgium, with headquarters at New York and branches in Boston, Philadelphia, Chicago, Los Angeles and San Francisco.

Film finishing operations are carried out on a large scale in New York, where also a modernly equipped cutting plant is maintained for the cutting and packing to commercial sizes of various types of photographic paper, supplied in full factory rolls by the Belgian Company. In addition, three amateur movie film laboratories are operated in New York, Chicago and Los Angeles.

Several hundred people are employed in the combined locations, but it is anticipated that American labor in much greater number will be required by the new factory. Naturally many of the unemployed in the communities in closest proximity to the factory will reap the benefit of this enterprise.

The Gevaert Company of America, Inc., has taken this step because of its desire to assure its American clientele not only of a continuity of supply in these difficult times, but also in order to better serve the American trade by increasing its production facilities and bringing its source of supply closer to its markets.

Spencer Lens Celebrates Finish of Giant Building

An "open house" for employees, local business, professional men and editors of business publications marked the opening of the new additional Spencer Lens Company plant October 26, in Cheetowaga, N. Y., near Buffalo.

Ninety-two years have elapsed since the pioneer Charles A. Spencer, first American microscope maker, engaged upon commercial production.

A planned program of research and development, as well as entrance into new fields of scientific instrument manufacture, made the expansion necessary to Spencer Lens Company, the Scientific Instrument Division of American Optical Company. To its present Doat Street plan in Buffalo Spencer now adds more than 100,000 square feet of floor space. The Doat Street facilities henceforth will be used for general offices, research and development, lens production, assembly, final inspection and related services.

The new building is 210 by 410 feet overall, of steel, brick and concrete construction. The main factory is single story. A two-story section on two sides contain offices, the production engineering department, locker rooms, a cafeteria, and completely equipped kitchen.

Generous use of glass in side walls make this a perfectly day-lighted factory. More than an acre of glass is built in. Mercury vapor and Mazda combination units give an average of 43 foot candles of artificial lighting at working plane height.

Cameraman Goes Up in Air When Actor Goes Prankist

Confounding cameramen is a favorite trick of Vincent Price, six foot four inch film leading man, as demonstrated on the set of Universal's "The Invisible Man Returns."

Price baffled Milton Krasner, A.S.C., cinematographer, by upsetting "sets ups" of scenes as lined up with stand-ins by the cameraman.

Each time Price stepped into a scene, his head would be half cut off in the camera "finder." Krasner accused nearly everyone in the company of moving his camera until he discovered that Price, just before stepping in, had borrowed his stand-in's "lifts."

The latter devices, attached to the shoes, raise Price's stand-in, who stands "only" six feet, one inch, to the actor's height. With the "lifts," Price became six feet seven inches tall and Krasner's line-ups were thrown out of focus.

Continuity Prime Factor of Story Telling

(Continued from Page 562)

Medium shot—Scene 3—Shot of farmhouse and door of porch.

Closeup—Scene 4—Shot of door. Girl opens door and calls.

Reread Scenarios

After completely listing your scenes in this manner, write in the action of each scene. You then will have your story laid out so that anyone can read it and visualize the action of the whole scenario.

Reread the scenario many times, mak-

ing a mental picture of each scene as you read, and determine whether each scene is closely related to the following one, giving a step-by-step continuity of thought.

Many scenarios are written which contain problems that are difficult to surmount. The portraying of a lapse of time, series of events or changes of localities in scenarios are usually slow moving scenes and tend to retard the smooth tempo of the balance of the picture. This type of sequence can be overcome most effectively by the use of "montage" shots properly used.

"Montage" is a series of short scenes which, when viewed in their proper order, convey a lapse of time, or series of events. If each scene were viewed separately it is incoherent and unrelated to the story, but by combining with certain other scenes, the combined scenes denote a certain phase or thought to be expressed.

Watch Professional Screen

The separate scenes may vary in length from two frames to any length that is necessary according to the tempo of the picture.

Each scenario requires its own montage effects, and its ability to express an idea to the audience depends on the ingenuity of the cameraman. A montage effect to denote household work can be assembled by combining short shots of routine work, such as laundry work, ironing, dishwashing, scrubbing, sweeping, etc.

Short closeups of each action will denote a housewife's daily duties or suggest work. If you will watch the professional screen, you will usually find a montage sequence that carries you forward in the story with the cameraman showing you a tedious series of events that would retard the tempo.

Building the climax of the scenario must be done by increasing the suspense of audience. Place your hero in a precarious situation where he must race against time or overcome great odds to achieve his ends.

Remember that you cannot depend on dialogue or sound effects to do this, and the suspense must be portrayed. If your scenarios appears to be slow moving or weak in certain sequences, rewrite them to improve them and visualize their appearance on the screen before shooting them.

It is difficult to produce tenseness in an audience, but a simple matter to produce a yawn.

Tell Story

To avoid placing the stigma of "Amateur" to your films do not shoot pot shots. Even though you are filming a fifty foot roll of the family, make it tell a story. Have them play bridge with one member receiving a perfect spade hand.

It gives you an opportunity for closeups, showing different expressions, and ties the shots together.

Or a group at a cabin can be shown doing all the necessary chores while a "Lazy-bones" sleeps. When everyone has gone tired, "Lazy-bones" awakens and wants some one to go hunting with him. Add a few touches of humor and your short reels are more interesting.

Tempo in continuity is the speed at which your scenario flows. The story controls the tempo, often starting at a medium speed, quickening to the climax and tapering off to the final love scene.

Quick cutting of action shots speeds the tempo, and injecting "montage" shots keeps your audience mentally alert to catch each scene as it appears. Love stories usually move slowly, but comedy or drama is quickened by fast action, short scenes and tense moments. Pictures of fast tempo are more popular.

When planning a continuity, keep the primary factors in mind. Assure yourself that the story is strong and subtitles are few. Analyze the camera angle you want and don't let a picture "drag."

Keep it moving so that your audience must be alert. Guard against the use of trick shots that are not effective. These are usually overworked, and detract from a good picture.

Don't Hurry

You have a story to tell, so tell it clearly, effectively and smoothly. Your continuity must flow evenly, fast and be properly edited and cut.

Continuity is that element whereby the audience's train of thought is unbroken until the final fadeout. A *good* picture is *never* made in a hurry.

Check your scenario against these items before filming:

1. Does the story call for a fast tempo?
2. Is each scene, as written, related to the following scene closely?
3. Is each sequence a short story in itself?
4. Will any humor add or detract from the story?
5. Are there too many titles?
6. Will the montage shots convey the thought to be expressed?
7. Are the characters well chosen for their ability to act?
8. Does suspense seem to build to the climax?
9. Are the camera angles well chosen for the effect desired?
10. Does the story call for somber (low key) lighting or gay, frivolous (high key) lighting?
11. Are the longshots and closeups properly placed?
12. Can some scenes be shortened by merely suggesting the action?

MGM Builds Unique Camera Boom

(Continued from Page 540)

In this the camera is slung beneath the panning mechanism, though of course the pan and tilt controls are in their usual places, beside and slightly under the camera. Each gives the camera a full 360-degree rotation in its plane; the crank-wheel controls favored at M-G-M are used.

The panoramic movement is geared to unusually high speed: only 14 revolutions of the control wheel are required to revolve the camera through a full 360-degree circle.

A single, well-upholstered seat, of tubular metal construction, is provided for the operative cameraman. This seat is quickly removable when not needed. Ordinarily no seat is needed for the assistant, as the camera is focused by an adaptation of a D. C. remote-control method.

Provision is made for mounting a second camera above the crane arm. This has a conventional M-G-M type pan-and-tilt head, and pans and tilts wholly independent of the lower camera.

Built-In Counterbalance

A source of constant irritation, and in some cases even of danger, in conventional crane designs is the system of counterbalancing the weight of camera and crew, which is usually done by means of removable lead weights placed in a box at the opposite end of the arm.

In Arnold's new boom the counterbalance is built permanently into the arm. Compensation for the varying weights of equipment and crew is made by turning a large control wheel at the inner end of the arm. This moves the counterweight toward or away from the fulcrum, accordingly decreasing or increasing its leverage.

By this means it is possible to counterbalance the boom so accurately that it may literally be raised or lowered with one finger. A set-screw type of friction lock, operating on a quadrant, permits locking the arm in any position. A similar lock is provided to limit the boom's horizontal rotation, and brakes of the automotive type are provided on the rear wheels.

A full circular catwalk is provided for the boom-operator. This is made in four sections, all of which are demountable. At the front end are two telescopic tubular members, either or both of which can be extended—one on either side—for the stage crew to use in pushing the crane for dolly-shots.

A non-extensible, curved bumper is fixed at the rear for the same purpose, and also as a guard-rail. All of these units—catwalk, pushing arms and bumper—are instantly demountable.

Flexible Operation

The degree to which the unique construction employed by Arnold saves weight may be judged by the fact that while comparable-sized booms of conventional construction have an average weight of over 7600 pounds, the new M-G-M boom weighs but 3100 pounds. Yet there appears to be no sacrifice in either strength or rigidity.

Arnold has designed this new boom to be as nearly as possible a completely universal camera carriage. Its rigidity is such that it can be employed, except in the most cramped quarters, as a stationary camera support in place of conventional tripods and the like.

In this service, the elevated crane arm and underslung camera mount give the camera crew more clear working space about the camera than any conventional type of tripod or boom. At the same time the crane arm, together with the power-driven hoist and free-rolling chassis, makes accurate positioning of the camera quicker and easier.

The suitability of the unit for the majority of moving-camera shots will of course be obvious. The precise controllability of the counterbalancing facilitates one-man operation in scenes where the camera must quickly follow an actor from a low position to a normal or high one, or the reverse.

In addition, the underslung camera mount will permit the boom arm to be extended completely over such a prop as a cafe table or even an automobile, and, with the boom extended to the side of the chassis, to dolly from or to such a position without interfering with the use of the prop in the wider angles of the same shot.

Altogether the unit appears unusually versatile, and represents a distinct forward step in the evolution of mobile camera platforms. The application of advanced materials and engineering principles to its construction are also noteworthy. M-G-M and designer Arnold are alike to be congratulated on the achievement.

Berndt-Maurer Issuing Three Booklets in Sound

From the Berndt-Maurer Corporation, 117 East Twenty-fourth street, New York, copies of three educational booklets are available to any individual seriously interested.

The title of the booklet "How to Benefit from Sound Films and How to Obtain Them at Lowest Cost" indicates its contents. The reasons why it is now possible and desirable to employ the sound motion picture on a broader scale than heretofore are pointed out, and some of the problems which can be effectively solved by movies are outlined.

The two other booklets are technical in nature and show why sound recording directly in 16mm. film produces higher quality results than the method of recording on 35mm. film and reducing to 16mm. for the final print.

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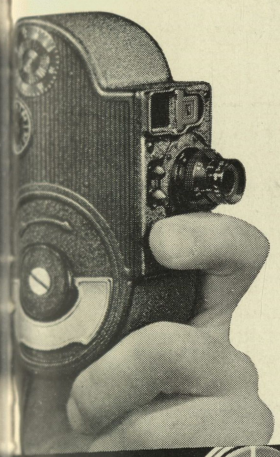

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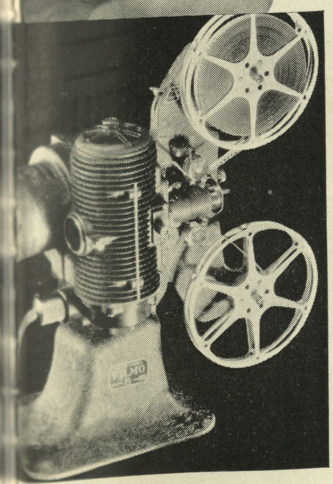

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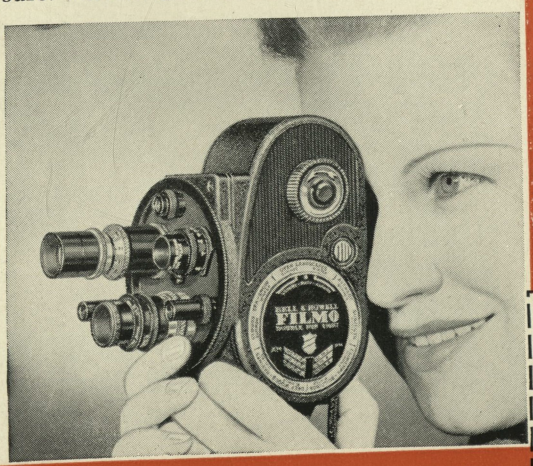

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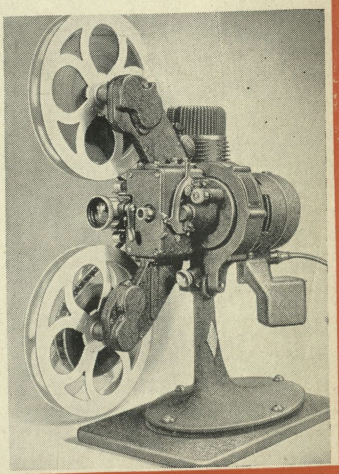

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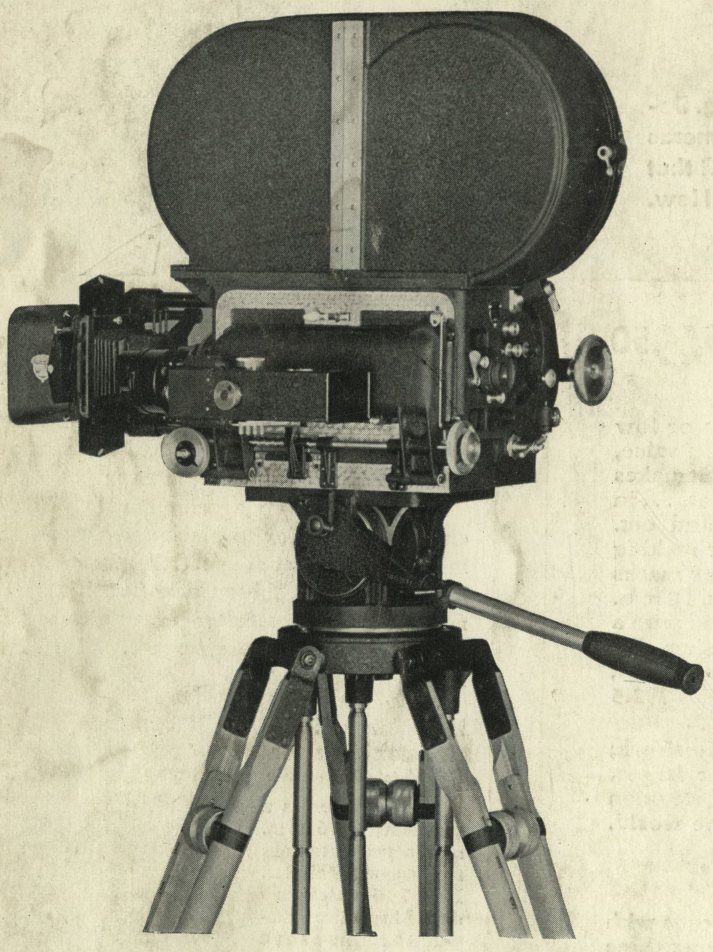

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